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THE AMERICAN ARCHITECT

VOL. CXVII WEDNESDAY, APRIL 14, 1920 NUMBER 2312

A FRENCH FAMILY LEAVING THEIR RUINED HOME

Notes from London

(By Special Correspondence to THE AMERICAN ARCHITECT)

IN a recent article I mentioned that I proposed in the present notice to give particular attention to the work of reconstruction in France. First, in this immense and most pressing task I will here give some account of the "Renaissance des Cités," which has its "siége administratif" at 23 Rue Louis-le-Grand, Paris.

The aim of this excellent organization, which they very properly describe as an "Oeuvre d'action," rather than an "Oeuvre de pure doctrine," has been recently stated by the promoters of the "Renaissance des Cités" in the following terms. "To study the problem of reconstruction from the social, judicial and architectural points of view. To consider this problem always in its ensemble and not in a specialized form. To endeavor in any concrete case to apply the remedy. To bring together into this work personalities with the most different conceptions and experiences, in order, by the exchange and often by the shock of ideas, to strike out the

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conception which is nearest to the truth. To sow this conception, and often to see it flower into life. To take this social renewal at its base—that of education. To accustom benevolent capacities to work in common to the discipline of a sustained effort.

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All preconceived theory to be put aside in the choice of the men called to this work: the result alone of realized labor to be the ground for the choice of collaborators. A social work—they add—"lies before us full of living interest, with often unhoped-for results; but a work in the shadows beneath, of patience, of faith in the aim to be attained."

This work of the "Renaissance des Cités" has been divided under different commissions—Commission Technique, Commission Sociale, Commission Juridique, Commission Artistique, Comité Achéologique—with, at the head of the Comiré de Propagande, as its President, Princess Jacques de Broglie.

One of the first fruits of this united effort was the exhibition organized and now being held, at the Union Centrale des Arts Décoratifs under the title of "Exposition pour le Renaissance des Cités," which was formally inaugurated by M. Albert Lebrun, Minister of the Liberated Regions. The Mayor of Chauny, M. Descambres, whose courageous attitude during the German occupation has been since followed by the most devoted and consistent zeal for the reconstruction of his city, over which the tide of war had flowed and ebbed till it became little more than a heap of ruins, spoke of his satisfaction in the successful Concours de Chauny, which he described as of the happiest augury for the future. He was followed by the Minister, M. Lebrun, who complimented the "Renaissance des Cités" on the difficulties which had been already conquered, and the precious results obtained. He offered himself "with all his heart," as well as all his "chefs de service" to the realization of the work, believing that the union of so many men of good will would show to the world that France has not only known how to keep a glorious place in the field of battle, but that now with peace the solid qualities of her children will permit her to restore the North and East, which have suffered so cruelly.

A "PILL BOX" BUILT THREE FEET THICK

MEUSE: PANORAMIC VIEW OF A WOOD

The program traced out by the "Renaissance des Cités" is a large and serious one. On its active side

its scope includes the revision of hygienic regulations, already adopted by the Conseil Supérieur d'Hygiène Publique; plans for the arranging and extension of Albert (Somme) and its region, of Tracy-le-Val and Ollencourt (Somme), of Courneuve (Seine) and of Chauny and its district (Aisne)—these plans appearing in the Concours of the Union Centrale. Besides the above there are studies on Coucy-le-Chateau and various Communes; plans of rural reconstruction, of children's education, of agricultural co-operation, social centers, sport and recreation. It is thus not merely a work of reparation for the losses of war, but of real reconstruction among these recovered and recreated cities and communes in their social, hygienic and industrial life, with as its aim the evolution of the "Citè Nouvelle" of the future—"l'espérance d'améliorer la Cité nouvelle."

An interesting special problem is here, the reconstruction of Coucy-le-Chateau, organized by its Mayor and the "Renaissance des Cités," under the presidency of M. Lefevre-Pontalie. Their report states that the situation specially caused to this "chef-lieu" of the canton by the total and deliberate destruction by the Germans of a magnificent specimen of mediæval military art has been examined from the double point of view of safeguarding the tragic ruins, which remain to give to the future an imperishable witness of the vandalism of our vanquished enemies, and of the economic and administrative necessity of reconstituting this "chef-lieu," whose very name has become a symbol of patriotism.

Thus while in England we are wasting our energies and splendid national resources in useless and misdirected trade disputes, in France the work of reconstruction is being approached in a serious spirit of united effort; and I turn now to the very important town-planning competition for Paris, to which I alluded briefly in my last letter, which was opened in August and continued until January 31, 1920.

Paris is a city surrounded with ancient fortifications, which are now to be demolished and the ground they cover with their basal zones to be handed over to the city of Paris for building and planning. This will necessarily affect the whole relation of the city and its suburbs, which badly need improved transport, having been hitherto largely dependent on what is known as the "Grande Ceinture," that primæval railway which it has been my misfortune to crawl around on more than one occasion, with considerable weariness and waste of time. What is now proposed is, put briefly, to transfer as far as possible the homes of the working classes to the outer districts, where a small house

RUINS OF HOUSES IN A VILLAGE OF THE MARNE

with its garden may be a practicable ideal, to extend the Metropolitan Railway beyond the old inner fortifications, and to turn the outer ring of forts, which extend from five to ten miles beyond the city, into parks and garden cities. The program set forth by the municipality of Paris for this competition desires expressly that projects should aim at "bigness of ideas" rather than at elaborated detail and should be in the nature of a sketch ("esquisse"). There are five premiums offered in this section, varying from 5,000 to 30,000 francs, while an additional 10,000 francs is placed at the jury's discretion.

HOUSE BUILT FROM TRENCH DEBRIS

Apart from this comes the second question of the improvement and beautifying of the existing city, of eliminating slums, the population being transferred to the new outer zones, the building of new streets and boulevards, and the protection of the lower city against recurrent floods. In this second section four premiums are offered, varying from 4,000 to 7,000 francs, with 6,000 francs at the discretion of the jury. Section III deals with the laying out of the fortification zones—that is, the inner line, as distinct from the outer forts, mentioned under Section I as destined for garden cities, and in many cases commanding splendid views; and Section IV deals with Housing, Hygiene, Traffic Development, the premiums here being 6,000, 4,500 and 3,000 francs, with a further 6,000 at the disposal of the jury. It is to be noted that this competition is open to citizens of all the allied nations, the entrance fee being 100 francs, in return for which each competitor will receive twelve different plans of Paris and its district, besides documents giving very full information as to regulations, etc. Competitors may supplement their plans as required, which are generally two for the section, by additional water colors and drawings; all accepted projects are the absolute property of the city of Paris. The jury will consist of ten architects, to be nominated by the competitors.

Since 1870 Paris has been under a cloud, never, indeed, openly expressed, but always to be felt in the background. She is now once more emerging to take her true and secular place as a world center of taste and culture, as the "semeuse d'idées,"

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the "Ville Lumière"—and her municipality is wisely looking to the future.

I come next, in treating reconstruction in France, to a work of the highest value to humanity, and one which cannot be sufficiently praised. I refer to that undertaken in France by the War Victims Committee of the Society of Friends. Already in 1914 this work was taken in hand; and I have before me a copy of the letter, dated October 16, 1914, in which the Minister of War accepted the offer made by the Society of Friends to the French Government of doctors, nurses and men volunteers to help the sorely tried noncombatant population. Most of all was this help needed in the Department of the Marne; and, though the Government made a grant to refugees from the invaded territories, "we found," says the 1914 Report of the Society, "that this barely covers food and lodging . . . that they had escaped with nothing but their summer clothes, and that thousands in Chalons and the surrounding country were in the face of the approaching win-

A SHELL-SWEPT VILLAGE

ter destitute of blankets, clothing and the necessities of life."

The first party sent out consisted of five persons, and the first center of work was at Esterney, which had suffered terribly from the fierce fighting at the time of the battle of the Marne. The need was great at this time, both for relief and the construction of shelters and houses, which has formed throughout a most important part of the work accomplished. In five or six of the villages building work was at once undertaken both for shelters and repair. "The character of the work," says the report, "varied, but in most cases is governed by the fact that substantial walls have often been left after fire and bombardment"—though it may be noted that Sermaize, in their field of work, a prosperous little town of about 4,000 inhabitants, was left "hardly more than a heap of broken bricks and twisted iron," with the fountain in its center by some chance surviving. "Sometimes a one-storied dwelling can be made by roofing in and adapting existing walls, adding, perhaps, an inner partition; in other cases a lean-to building can be erected against a large, strong outer wall; in others demolition and rebuilding are both necessary;" and here the wooden houses, two-roomed or four-roomed, as the case might be, were of prompt and precious assistance. "It takes six men about twenty hours to erect a two-roomed house, and as the French authorities provide all the materials, the cost to the Commune is only about £5;" and my illustrations will give an idea of one of the workshops at Ornans, where these were prepared.

Hygiene was no less important than housing, for the sanitary conditions were frequently very bad and threatened an epidemic; but what one feels was perhaps the greatest achievement of all was the presence of human sympathy, of Christian love to these distracted and desperate beings. For the worst danger of all was the moral collapse of people attached to their homes and land, left destitute and idle, without work in the present, without hope for the future. "The hopeless boredom of life without aim and almost without hope, seems a real danger for these women and girls accustomed to the many activities of farm life . . . the great desire of all is to get back to their own neighborhood, even though they know they will find nothing but ruin awaiting them." To these men and women the helping hand and voice, the kind word, the chance of some fresh start, however humble, meant everything. Their words of gratitude are from the heart, and are touching in their sincerity. "Le Société des Amis a droit a la reconnaissance de la population toute entière. Son départ va causer un grand vide dans le pays"; or again from another sufferer, "Je n'oublierai pas la sympathie dont vous nous avez entourée."

Take the story of little Antoinette as a typical one. "Her father was away, ill and dispirited at Verdun, and would sanction no schemes involving expenditure, while her mother was almost too downhearted to make any effort. Only Antoinette, of about eight years old, had pluck and hope for the whole family, and an immense determination to possess a new home. "Ah," said the grandmère, "she's the one that's got the brains. She says she has half a franc in her purse, and she will pay for the wood." . . . Antoinette was not to be discouraged; she knew, she said, all about the cost, for the notice was posted up in the village, and at last the mother was persuaded to allow her to come to interview "Monsieur l'architecte" Antoinette needed no prompting. "Monsieur, je démande pour Maman le prix d'un abri de deux pièces, une cuisine et une chambre a coucher" as if one ordered houses every day.

Most pathetic of all are the old people's tales of suffering; for "it is hard to begin life over again, and in some cases it would seem almost impossible." One old couple, with a still older aunt, escaped from their farm with just twenty francs, and spent two months in fields and woods, sleeping under hedges, and stumbling one very dark night into the German lines, from which they were chased after suffering agonies of fright from the rifles leveled at them. Another old lady at Noyers, saved with her husband by her own horse and cart, refused obstinately to kill or sell her old mare—"my friend and savior." She knew the Germans were following and she trotted without stopping day and night, just snatching at a bite by the wayside. The work that had commenced with a little party of five had in these four years of war spread into a vast network of organized and splendid effort. Medical work, building, agriculture were now in full swing; already in 1915 some 310 wooden houses had been erected, and the problem of furnishing them had become a pressing one.

In Sermaize, which had now risen from its ashes, the Prefecture and Society of Friends between them gave one double bed and mattress to every household which had been burnt out. "This scheme gave the very greatest satisfaction, for the French people are immensely careful and particular about their beds and bedding, and nothing hurts their self-respect more than the miserable sleeping arrangements to which for more than a year they have been condemned."

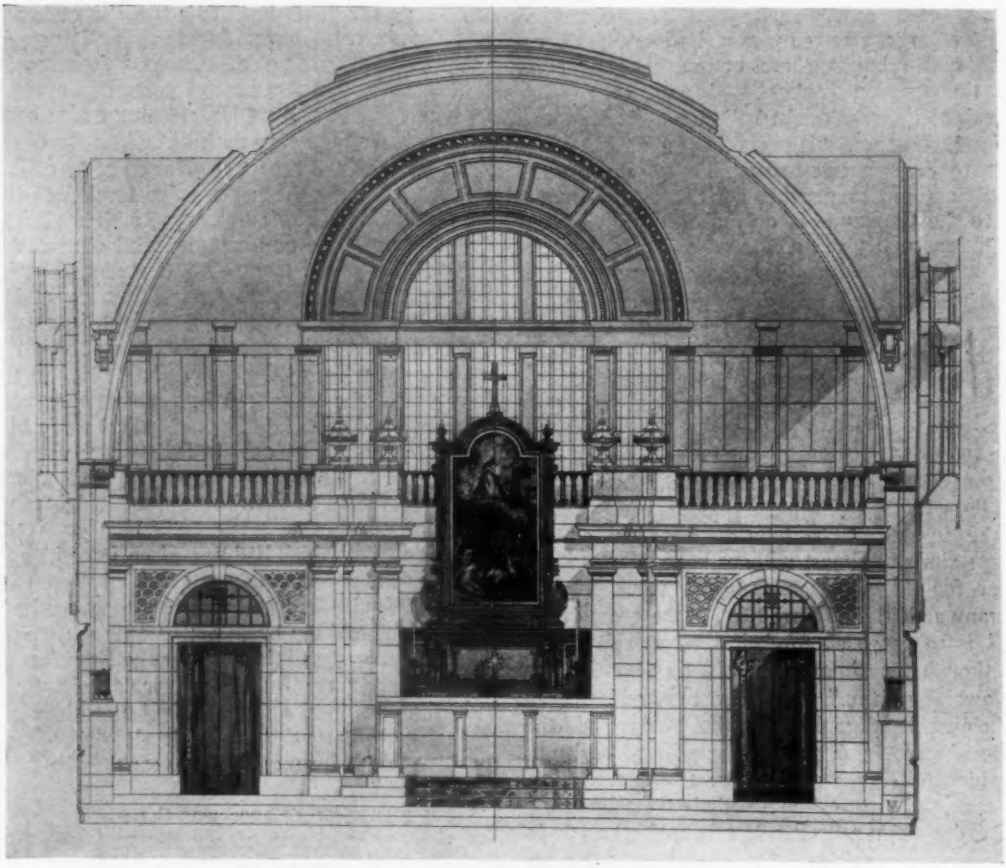
Of immense importance was the work of saving the children, and one of my illustrations gives a little flock of these babies in an open-air crèche at Samoens; that at Chalons was "the admiration of

French visitors, an object lesson to the mothers in the value of fresh air." Agricultural machinery and tools were slowly coming in, the building of huts (one of my plates shows a machine shop at Ornans) being thoroughly organized; and in 1917, under the aegis of the American Red Cross, welcome help had come from America, and the American Red Cross in Europe had made a first grant to the Society of about £20,000 while a hundred workers from the American Friends' Service Committee had come across. What matter if yet later the tide of this terrible war was to sweep back and blot out much of this creative effort: the spirit of Christian help and life was there, established, unconquerable, ready to begin again the struggle for life against the forces of destruction, and to one whose family has been connected for generations, most directly on the American side, with the Society of Friends it is a privilege to record a work of loving-kindness in which the very Spirit of Christ was most surely present.

Devonshire House

Now that Devonshire House is announced as actually sold our interest naturally turns to the great house which has now stood for some two hundred years in Piccadilly, and might at one time have been considered as the home of the great Whig party. The site on which it stands was originally occupied by the Hay Hill Farm, whose name still survives in Hay Hill; but soon after the Restoration Lord Berkeley of Stratton built Berkeley House, which was acquired in 1696 by the then Duke of Devonshire.

When this house was burnt down in 1733 the third Duke entrusted its rebuilding to the fashionable architect of his day, William Kent, who received one thousand pounds as his honorarium, though the building cost twenty times that amount.



MEMORIAL ALTAR, ROEDEAN CHAPEL

J. W. SIMPSON, P.R.I.B.A. AND MAXWELL AYRTON, A.R.I.B.A., *ARCHITECTS*

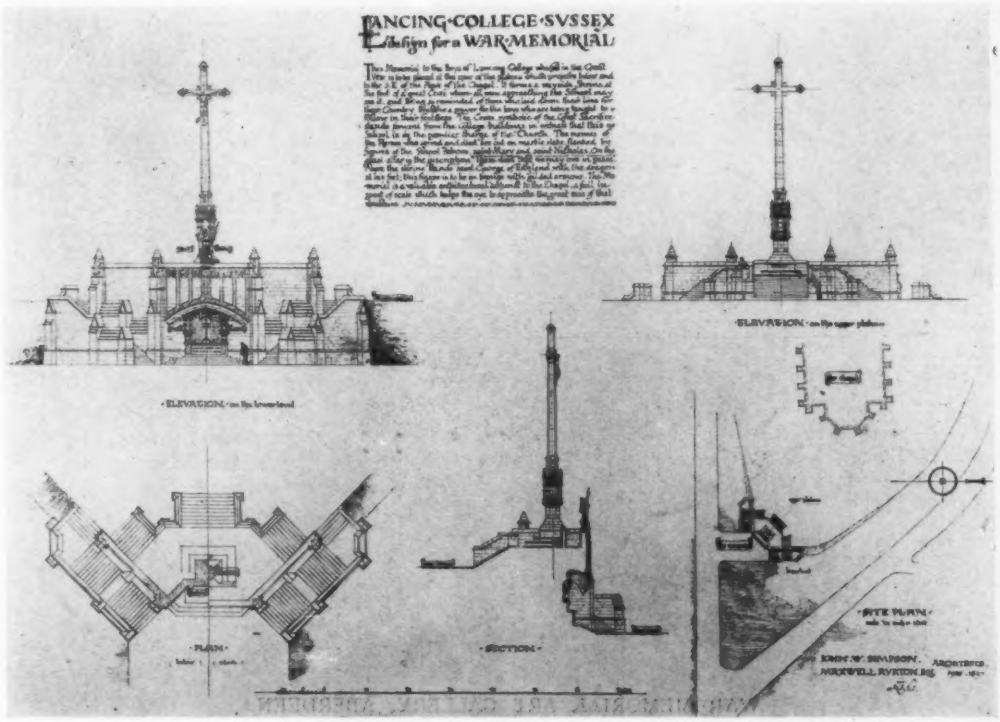
William Kent's career is remarkable. A poor Yorkshire boy, he commenced as a coachmaker's apprentice, but ran away to London. He now began portrait painting, though his work in this direction is severely criticized by Horace Walpole; but he was taken by a patron to Rome, where he had the luck to meet the famous Earl of Burlington. From that moment Kent's good star was in the ascendant. The Earl carried him back to London, gave him apartments in Burlington House, which he occupied till his death, and gave him, too, just the start he needed. Kent's talents were universal in art creation. Besides his work in architecture, in which he has the Horse Guards to his credit and his masterpiece of Holkham, he was, as we have seen, a painter of history as well as portraits, a sculptor, designer of furniture, and landscape gardener. He became the "arbiter elegantiarum" of his day; and we even hear of two great ladies who appealed to him to design their "birthday dresses." Kent was fully equal to even this commission: one seems to have a "creation" in bronze and gold, the other introduced in the petticoat "the five orders of architecture." This was surely Palladianism à l'outrance" and makes us feel it was time for the Baroque—or even the Gothic revival. Hogarth, in fact, attacked him bitterly as a charlatan, a Jack of all trades; but his furniture has dignity and design, and his architecture is not without merit.

The entrance of Devonshire House is heavy in design, but we have to remember here that the external flight of steps has been now removed; and in the interior Mr. Beresford Chancellor has pointed out that the architect "was able to give play to his love of the rococo." Especially fine was the furniture, which included some rich designs by Kent himself, examples of which I hope to illustrate, and of the great French artificers of that day. The great wrought iron gates, with the Cavendish motto, "Cavendo tutus," were brought from Chiswick house in 1897. When some assertive modern hotel has seized its place we may perhaps regret the severe and plain mansion which William Kent had designed.

War Memorials in England

The present War Memorials Exhibition, opened this month within the walls of the Royal Academy, is in a sense the necessary complement of that which preceded it, and which I have already noticed in these columns when it was opened at the

(*Continued on page 463*)



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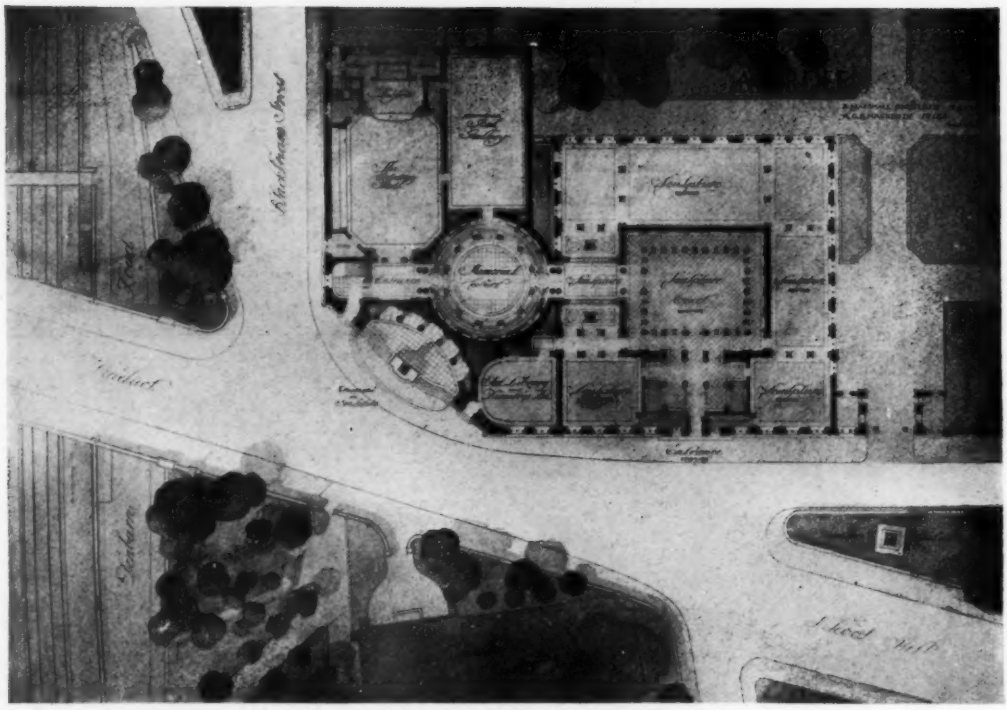


WAR MEMORIAL ART GALLERY, ABERDEEN

MESSRS. A. MARSHALL MACKENZIE AND A. G. R. MACKENZIE, *ARCHITECTS*

EDITORIAL

On Seeing Things

THE ARCHITECT of London laments, in a long editorial in a recent issue, that Englishmen, and particularly those who went to the war, lack to a great extent the faculty of close observation. It cites an instance where an aviator who made a successful flight to Australia, and who during the flight was obliged by fog to land at Pisa, pathetically described his situation as with "nothing to do but see the sights." It further remarks that many people have made long trips to reach Pisa and view the "sights" that this officer aviator regards as part of an uneventful voyage.

Perhaps *The Architect* is unduly harsh with its countrymen as lacking the ability intelligently to appreciate their environment. The power of well-trained observation is born in few men. The fault lies in our methods of education that fail to impress the value of seeing things and seeing them intelligently.

Someone has said that painters and sculptors are not really born as such, that their proficiency in their arts is the result of early and correctly trained powers of observation. It is further claimed that anyone of average intelligence can learn to draw or model, if he is early taught to see things correctly. It is this one thing,—the power correctly to analyze the things one sees—that is the basis of all education.

It was an Englishman, it is said, who on being asked if he could play the piano, replied that he did not know as he had never tried to. It is absolutely true that there are many things we could do if we would only try to do them. The easiest of these is to see things as they are.

Most of us go through life in a state of introspection. We do not sufficiently observe with a seeing eye. The mental vision is too often turned inward.

A lecturer urged an audience of young people to "stand on their hind legs and look out of their eyes." This provoked a laugh, as something amusing. But it is a word of advice that everyone might follow with profit, and none more than the architectural student.

The new and improved methods of architectural education will certainly teach men to a greater extent the value of trained and accurate seeing of things. Most men will claim that they possess an ability to observe intelligently. Perhaps they have that ability, but there is a difference between so-called intelligent observation and the accuracy that is essential to every student of architecture. We may intelligently view a thing and feel that it is good, but not everyone may be able accurately to state why it is good and give the reasons for that conclusion.

It is this practical element in education in any of the arts that is an actual essential. If it were more generally taught we would not see so dreary a copying of precedent, but an originality based on accurate observation combined with the personal element of the observer.

Good Architecture a Commercial Asset

ONE of the greatest educational results achieved by architects in this country is that they have been able to satisfactorily show to their clients the value of good architecture as a commercial asset. We do not sufficiently appreciate how large are the results achieved, as we are, so to speak, too close to the actual field and have not noticed as keenly as we might a very decided development.

It is when an intelligent observer from another country visits us for the purpose of studying our methods in specific fields, that we awake to the fact that many things we regard as "matters of course" are of sufficient moment to evoke very warm expressions of approval from a foreign visitor.

An instance in point is found in an address made by Mr. Herbert Austen Hall, architect, before a recent meeting of the Royal Institute of British Architects. Mr. Hall had but recently returned from a visit to the United States. He came here to study our department stores. The paper read shows

that he certainly possessed a highly trained power of accurate observation. The address was very favorably received by the distinguished gathering on the occasion of this meeting.

As the result of observation in this country the speaker was of opinion that American architects had two great advantages. One was that there was an immense appreciation of fine architecture in the United States, the other that business men consider their building as an investment,—something more than a mere advertisement.

In the debate which followed the reading of this paper, one of the speakers stated that in this country "good architecture was as necessary as daylight"—and that we had come to look upon a fine building as almost a necessary accompaniment of a fine business.

The Report of the Housing Commission of the State of New York

IT is gratifying to note the practical and business-like methods pursued by the joint legislative Committee on Housing and the Reconstruction Commission of the State of New York. In a report to Governor Smith, dated March 26, this committee outlines the underlying causes that have created the great lack of proper housing and suggests certain measures that it is believed will speedily and effectively correct these things.

The personnel of the Commission is one to inspire respect for any report it may make. Its members are representative men, from the fields of finance, real estate, building, architecture and various departments of City and State governments.

A program of an architectural competition for the remodeling of a New York City tenement block, to be held under the auspices of this Commission, has been issued. A summary appears on a following page.

For more than a year the housing situation in New York and other large cities has been particularly grave. These conditions are, if possible, rapidly becoming worse.

In its report the Commission states that it has reached the conclusion that no temporary solution should be attempted. That whatever is done should be carried forward with a view to the permanent adjustment of these conditions on a basis of exact stability. "If," states this report, "all the money available in the New York market and throughout the State were put forward tomorrow, it would be impossible to build, even in a year, utilizing every bit of man-power or material available, houses enough to take care of the shortage."

Realizing this statement as one of fact, the Commission in its report sets forth a constructive program, which as the work of a group of practical and competent men, should be taken with the utmost seriousness and carried forward promptly and without interference.

Unfortunately, building operations have been of late years regarded purely as speculative investments. To secure the greatest return from the money invested has been the all-absorbing motive.

It now becomes very certain that if our working population is to be properly housed, this speculative element will need to become minimized. Certain legislative action as regards rent raising is the first step towards relieving this speculative control.

IF the investing public can be made to understand that speculative building is a very serious menace to our economic welfare, such an understanding will mitigate the emergency and eventually develop a correct policy.

Now that we have experienced the conditions arising from the war, and have been able to learn the effects of a protracted stoppage of building to supply housing needs, we can with accuracy measure the importance of the steadily carried forward program of building during the times of peace.

The more apparent and easily traceable causes of the present housing shortage are the lack of materials, labor troubles, and the difficulty of securing sufficient loaning capital. But these are not really the fundamental things that have brought us face to face with the economic menace of an acute housing shortage.

The present crisis is really the result, or culmination of the result, of past tendencies. The conditions arising from the war have merely accentuated these tendencies.

We must evolve a new and well formed program of correction. The essentials of such a program are, it is believed, to be found in this well considered report.

Notes from London

(*Continued from page* 459)

Victoria and Albert Museum. The present exhibition—we are informed by the Royal Academy War Memorials Committee—has been selected and arranged for the purpose of assisting the promoters of War Memorials and others interested, by providing them with a useful survey of modern work by competent artists, and suggesting various forms which Memorials may suitably take.

As my readers may possibly remember my critical verdict on the preceding exhibition at South Kensington was not enthusiastic, and it cannot be said that the present exhibition, though very much better in every way, reaches the level of its subject, which is no less than the adequate recognition in terms of plastic art of the heroic sacrifices which carried us through the dark days of the recent world conflict, and brought us at last to light and safety.

At the same time it represents a serious effort to grapple with a very difficult and interesting problem; and in this sense has much to be commended, even when it fails to attain the full spiritual significance of the subject. One reflection, which here comes clearly before us, is the intimate, the inherent connection between architecture and the highest forms of the sculptor's art,—a connection which has been often overlooked, at any rate in late years, in this country, but which runs through all the great art of the past, from the Parthenon, through the rich entablatures of the Roman period, the sculptured groups of Gothic work, in perfect harmony with the lines of shaft or moulding, and later in the Italian Renaissance. We find this law fully recognized in modern American sculpture, notably in the recent work of Daniel Chester French, and illustrated more or less directly in this exhibition in the designs of several leading British architects,—of Sir Reginald Blomfield, Sir Edwin Lutyens, Mr. Robert S. Weir and Sir Ernest George.

Sir Edwin Lutyens, in his small model of the "Cenotaph," which I described in connection with the Peace Celebrations, in the impressive and almost overpowering simplicity of the Great War Stone, which is being erected in British and Dominion War Cemeteries abroad, and still more his delightful design of a War Memorial at Spalding—in which the porticoed colonnade with its four great cypresses guarding a central memorial seems reminiscent of the famous Campo Santo of Pisa—shows throughout those qualities of balance and style, that fine sense of proportion which, in my judgment, insured the success of his much-discussed Westminster Cenotaph.

Mr. Robert Weir, in his ambitious "Pantheon of the Five Dominions," in which he is assisted in the sculpture by Mr. Gilbert Bayes and in the design by Mr. H. Wilson, is emphatic rather than impressive. His scheme is that of a circular building with a dome like that of Santa Sophia, a fine Romanesque porch, and an encircling gallery which seems, however, overpowered by the immense dome.

The Lancing College War Memorial, of which I give an illustration, is by Mr. J. W. Simpson, P. R. I. B. A., assisted by Mr. Maxwell Ayrton, and shows a great cross finely proportioned and placed over the Chapel; designed by the same architects is the Chapel altar and altarpiece of Roedean School, a new and prospering women's college near Brighton, which is about the same distance from my Sussex home on the east as is Lancing Boys' College on the west.

As a Worcestershire man two other memorials have a special interest for me in the proposed War Memorial for Malvern College, designed by Mr. Maurice Webb, F. R. I. B. A. and Mr. Walter Gilbert, and the Cenotaph, which is already "in situ"—in its temporay form—within the precincts and under the shadow of our Worcester Cathedral. We in Worcestershire are immensely and justifiably proud of our county regiment, which has a great tradition and was highly prized by Wellington in his Peninsular campaign; it went clean through the late war in all the hottest fighting, lost terribly, but won immortal glory, one among its many achievements being that of hurling back the Prussian Guard at Ypres in the most critical moment of the whole campaign. The present monument, designed by Messrs. H. Rowe and Sons of Worcester, bears only the words—THE GLORIOUS DEAD.

Mr. Adrian Jones has a brilliantly clever War Memorial for cavalry, which shows Saint George with brandished lance over the prostrate dragon, saluted by British and Colonial cavalry who ride below. Mr. Adrian Jones is a master of the horse in movement, and his composition here is good; but the design has been not unfairly criticized as being too pictorial. It possesses vigour and movement, but certainly no repose; and these two qualities in the best work are not surely incompatible.

The stained glass designs show very strongly the influence of the late Sir Edward Burne Jones, markedly in such designs as Edward Woore's cartoon of "Saint George" and in C. W. Whall's designs for stained glass windows, and yet again where these two artists collaborate in eleven cartoons for stained glass in Gallery VI. Burne Jones himself was an artist of imagination and exquisite beauty of line; but we do not want his

wonderful type to become a convention in this branch of art creation. Most attractive are the rolls of honour; and here Jessie Bayes excels in two designs,—that of a personal memorial and a Communion Service book, written and decorated in black, red and gold.

City of Birmingham, England, Housing Competition.

Report on Prize Winning Designs

MESSRS. INGALL, BRIDGWATER & PORTER, *Architects.*
Birmingham, England.

THE general lay-out has been planned to suit the existing levels of the site and so as to avoid unnecessary expense in levelling and in deep foundations, while at the same time securing all the requirements of modern housing, and in particular the maximum amount of sunlight in the rooms. The houses are grouped round three sides of two squares each with a short drive and turning space. The 4 houses with 4 bedrooms occupy the most prominent positions at the ends of the blocks and nearest to the road. Each house has a good and sufficient garden both front and back.

The accommodation asked for has been provided in each case, 12 houses having 3 bedrooms and 4 houses having 4 bedrooms. The living rooms are of the size required; 12 of them have windows facing south, and the other 4 have each two windows facing east and west, respectively; in all, 14 of the living rooms have two windows giving cross ventilation.

The sculleries are fitted with range, gas cooker, copper sink and draining board and table, with space for mangle. In two houses the copper and mangle are in the covered way. Storage rooms for prams or cycles is provided under the stairs.

Oversight of the garden is obtained from the living room and scullery windows. All larders are on, and have windows facing the north, except two, which face the east. In every house the principal bedroom contains not less than 160 sq. ft. of floor area. In 8 of the houses considerable economy has been exercised by reducing the area of the first floor, while still providing the necessary bedroom accommodation.

The walls to be built of bricks. The general facings to be in local red facing bricks, with black country facing bricks to plinth, quoins, oversailing to eaves and chimney heads.

The internal walls are 4½" thick with breeze concrete slab partitions between first floor rooms, where not over ground floor walls. The roof to be of deal purlins and rafters, covered with sand faced tiles.

The floors to living rooms, parlors and bedrooms, etc., to be of deal joists and boarding. Sculleries, larders, water closets and covered ways to have 9" red quarry floors. Coal places to have blue brick floors.

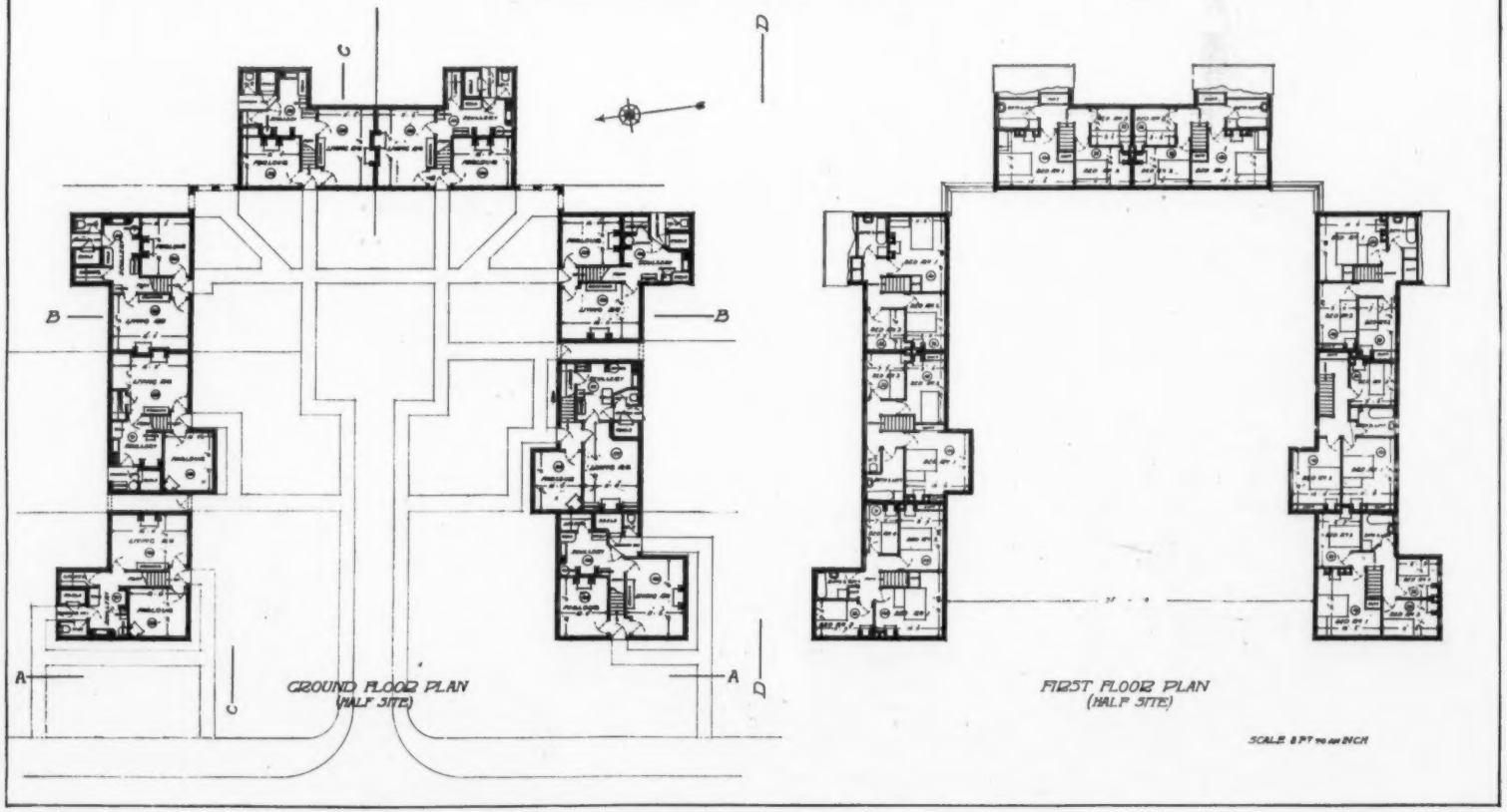
The joiner's work and fittings are standardized throughout.

The total cubical contents of the 16 houses measured from bottom of footings to half way up roof and including all chimneys above roof line is 222,-970 cu. ft.

The estimated cost at 1/1d per cu. ft. is £12,-077.10.10. This is an average of £754.16.11 per house.

CITY OF BIRMINGHAM HOUSING COMPETITION

SELLY OAK ROAD SITE



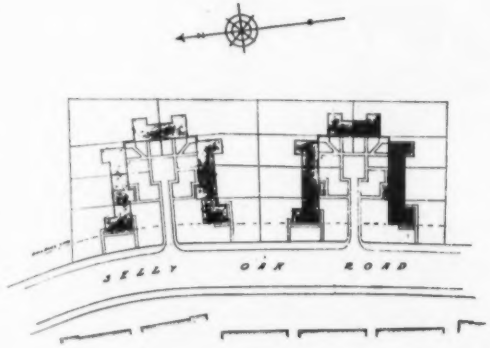
INGALL, BRIDGWATER & PORTER, BIRMINGHAM, ENGLAND, *ARCHITECTS*

CITY OF BIRMINGHAM HOUSING COMPETITION

SELLY OAK ROAD SITE

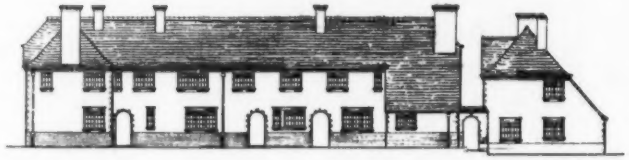
ELEVATION ON LINE A·A

ELEVATION & SECTION ON LINE B·B



BLOCK PLAN

ELEVATION & SECTION ON LINE C·C



ELEVATION ON LINE D·D

SCALE 8 FT to an INCH

INGALL, BRIDGWATER & PORTER, BIRMINGHAM, ENGLAND, *ARCHITECTS*

The Housing Problem and Earth Masonry

By THOMAS CRANE YOUNG

WHAT has blocked the progress of every housing project in this country, as well as in Europe, is the hard fact that under present prices of labor and commonly used materials it has proved utterly impossible to build even the smallest and most modest six-room cottage for a sum which, with the cost of the necessary land, would make the total investment for a home economically possible for the ordinary workman or moderately salaried individual. Houses which five years ago could easily be built for $4,000 or $5,000 will now cost $8,000 or $10,000.

A Congressional committee, reporting on the housing activities of the United States Housing Corporation, states: "Single houses in Bridgeport, Conn., cost $7,263. The average for all houses was $5,673.78."

It is not stated whether these prices represent a complete house or whether such necessary items as weather-stripping, electric fixtures, sidewalks, etc., were omitted. Probably no profit for the contractor nor cost of architectural service were included in these figures. And since the time these houses were constructed the cost of building has advanced possibly as much as 25 per cent. If one takes the average quoted price of

$5,263.78 plus 25% = $7,093.00 cost of house,

Add average price of

40 ft. lot at $30.... 1,200.00 cost of lot,

$8,293.00 cost of house and lot.

It can readily be seen that to pay rent or to own this home the occupant should have an income of at least $3,500 per year. At $1 per hour and working eight hours a day for 300 days a year, one could earn only $2,400, which is inadequate income for above basis of cost for rent.

So far as one can learn, every new housing project yet planned or constructed, either in this country or in Europe, has been based upon some form of tenement or the traditional story and a half cottage, usually containing five or six rooms and constructed in the customary way of either brick, hollow clay tile, or wood. It would seem, therefore, if it is possible to beat the building game, it will be necessary to evolve an entirely new type of house or find some cheaper material as a substitute. It might be possible to evolve the former if architects and builders could rid themselves of tradition and study the matter as though isolated in a country without the usual facilities of civilization and depend more upon their ingenuity and the materials which nature locally provides. In this way the Eskimo invented a cheap and comfortable dwelling built of ice; so did the early settlers in this country, who built of logs; and the early Spaniards and Indians of our Western States, who built of unbaked clay or adobe. There are abundant examples of these earth dwellings in our own country which compare favorably with the usual forms of construction for durability, looks and comfort. The Mission buildings of California are often constructed of this material, as well as many dwellings still in use after more than a century of wear. In this connection, one wonders why no one thought to construct our war cantonments and barracks of adobe instead of the unsightly, uncomfortable and costly wooden shacks universally used.

Adobe is a Spanish word from *adobar* (to plaster). It is nothing but air-dried brick of larger size than usual which may be weatherproofed with plaster, and any traveler in Mexico or California knows that these buildings are as beautiful as any we produce in the same class.

Many excellent plans for small cottages of the conventional American type have been developed by the U. S. Shipping Board and also by private architects, but as all of these have proved too costly to build, at least from a commercial standpoint, some new type of home will have to be devised in which every superfluous square inch of area and any unnecessary feature must be eliminated. Other possible economies may yet be found in new processes or materials as substitutes for present methods. Some years ago Mr. Edison led us to hope for much from his concrete house, but so far all forms of concrete have proved as costly at least as other forms of masonry.

A recent number of the London *Sphere* calls attention to an old form of masonry called "pisé" or "cob," the use of which in housing projects is now being considered in England and might be equally well applied in this country as an emergency substitute.

Sturgis' Dictionary of Architecture and Building describes it thus: "A cheap masonry of compressed earth. The most suitable solid for the purpose is clayey, somewhat sandy, loam and vegetable earth. It is mixed with straw or hay to prevent it from cracking when it dries. The wall is built in sections by means of a movable frame about

three feet high and ten feet long, the two sides of which are of boards kept apart the thickness of the wall. This frame is placed on the wall and between the sides the earth is rammed or beaten in four-inch layers. When this sort of box is full it is taken apart and set up in another place—in some parts of France houses of two or three stories are built of "pisé."

The *Sphere* states: The earth hardens to an astonishing extent in the process of drying off; so much so that it is sometimes difficult to bore into it with an auger. . . The outer surface of the pisé wall can be color-washed or treated in various ways. Spraying with hot liquid tar has been tried successfully. The natural wall weathers in course of time to a very attractive color, and the outer surface itself withstands ordinary rain action and bad weather.

When properly waterproofed, there is no reason why these earthen buildings should not stand one climate as well as another, and certainly our variety is not more severe than that of the British Islands or of France.

Of course, there is no data extant as to the cost of earthen masonry, but in the present housing emergency it would seem worth while to make an experiment in constructing a real building with earth walls.

Since writing the above, I am able to present the results of some tentative experiments made by F. A. Winter, of Robert W. Hunt & Co., testing engineers, at my suggestion. The clay was ordinary clay taken from a local excavation. The loam was top soil taken from a vacant St. Louis lot. The mixture was dry and tamped into the form by hand.

COMPRESSION TESTS.

No.	MIX.	SPECIMEN SIZE.	AGE.	LBS. PER SQ. IN.
1.	2 parts clay—1 loam.....	9 x 6"	6 days	125
2.	2 parts clay—1 loam, mixed with straw and small amount of gypsum around the outside....	9 x 6"	6 "	156
	Average weight—90 lbs. per cu. ft.			

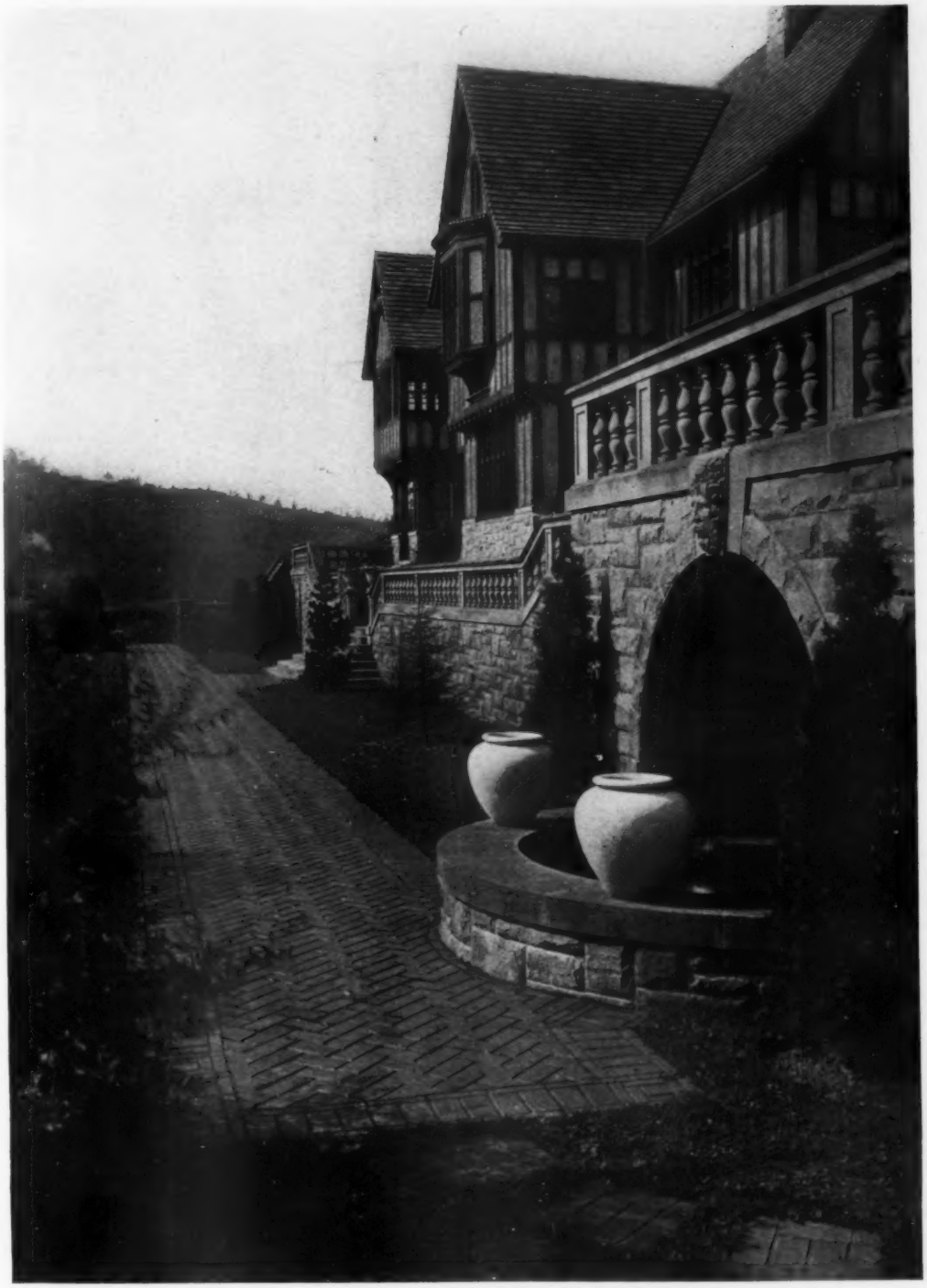
No.		POUNDS PER SQ. IN. 6 days.	16 days.
1.	Plain clay.....	93	130
2.	5 parts clay—1 cement.....	78	125
3.	5 parts clay—1 gypsum.....	195	235
4.	5 parts clay—1 lime.....	0	20
5.	2 parts clay—1 loam.....	80	125

Another experiment was made to ascertain the natural surface left by the forms and possible methods of waterproofing. Earth consisting of two parts clay and one part loam, with a slight addition of dry gypsum, was mixed with a little straw cut into lengths of about four inches. This was tamped by hand into a wooden box about 12 inches square by 3 inches deep. The resulting block when taken from the form after seasoning for six days could be handled like a stone. The surface in contact with the wood form was more perfect than is usually obtained with concrete and was of agreeable color. The block was plastered on one side with ordinary house plaster which, of course, could as well have been of the waterproof variety. A part of one side was painted with ordinary house paint, and other parts were treated with liquid cement and with creosote for waterproofing. It appears that either of these materials could be successfully used and no doubt others not at hand at the time.

These experiments are by no means exhaustive and, therefore, one should be cautious about drawing too hasty conclusions, but the indications are that if a proper technique were developed this material might prove very valuable for small structures not requiring great strength and might be of particular value for housing projects or farm buildings because of requiring the use of nothing more than homemade apparatus and untrained labor.

I believe the subject would justify a really scientific investigation by our universities or, perhaps, by the Federal Government itself. For, if the results of such an investigation were satisfactory the information could be spread throughout the country by existing channels as the Government now does in regard to road building, or other matters relating to agricultural subjects, forestry, etc.

HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.
ALBERT JOSEPH BODKER, *ARCHITECT*



HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.
ALBERT JOSEPH BODKER, *ARCHITECT*

GARDEN

HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.

ALBERT JOSEPH BODKER, *ARCHITECT*

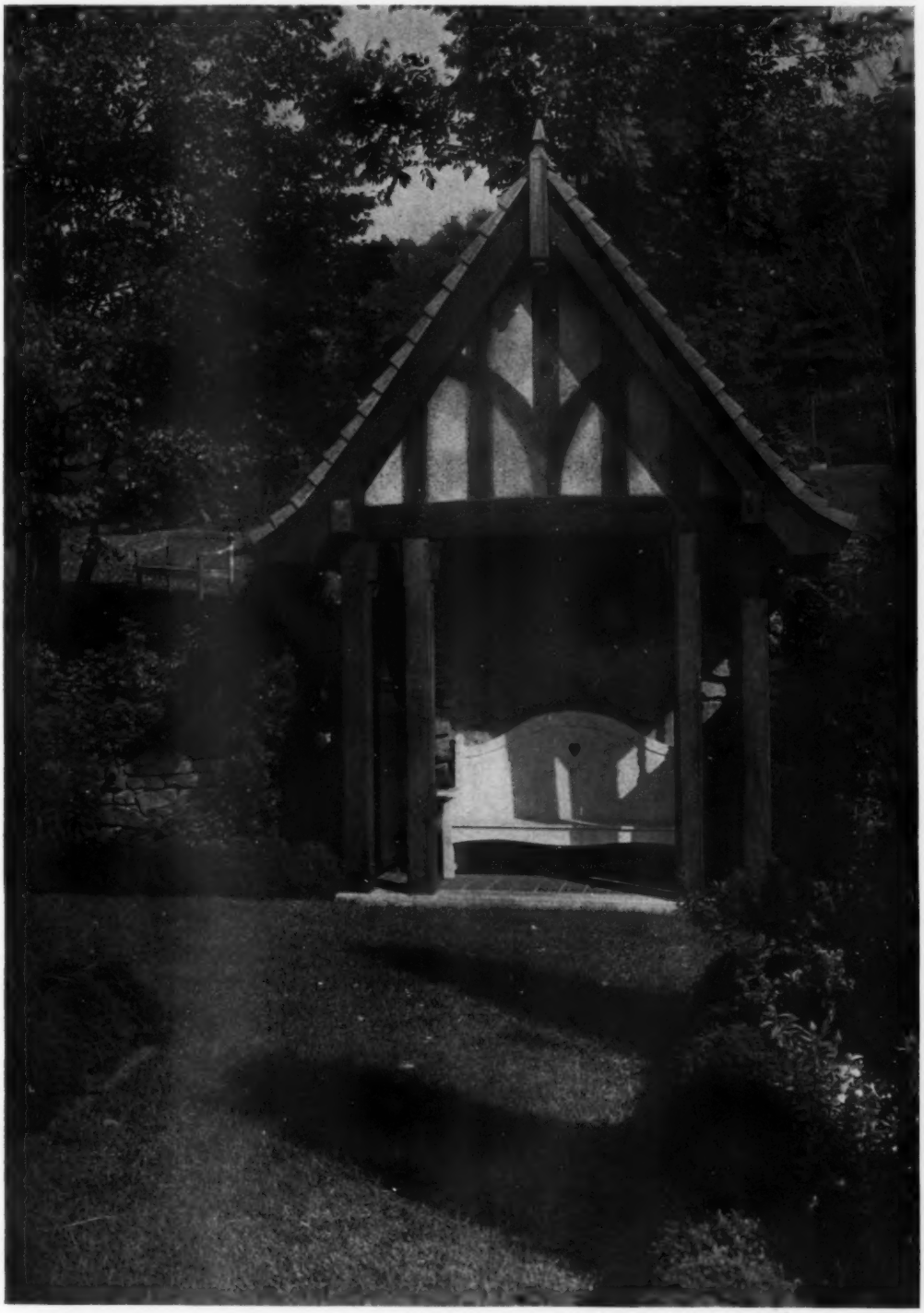
HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.
ALBERT JOSEPH BODKER, *ARCHITECT*

A GATEWAY

HALL

HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.

ALBERT JOSEPH BODKER, *ARCHITECT*



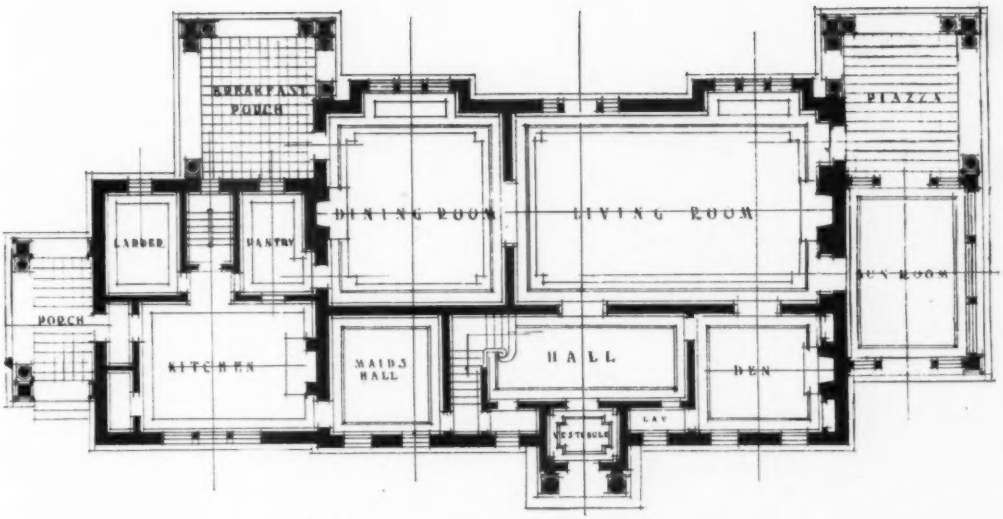
GARDEN

HOUSE OF GEORGE W. OLMSTEAD, LUDLOW, PA.

ALBERT JOSEPH BODKER, *ARCHITECT*

HOUSE OF E. M. RICHARDS, WEST NEWTON, MASS.

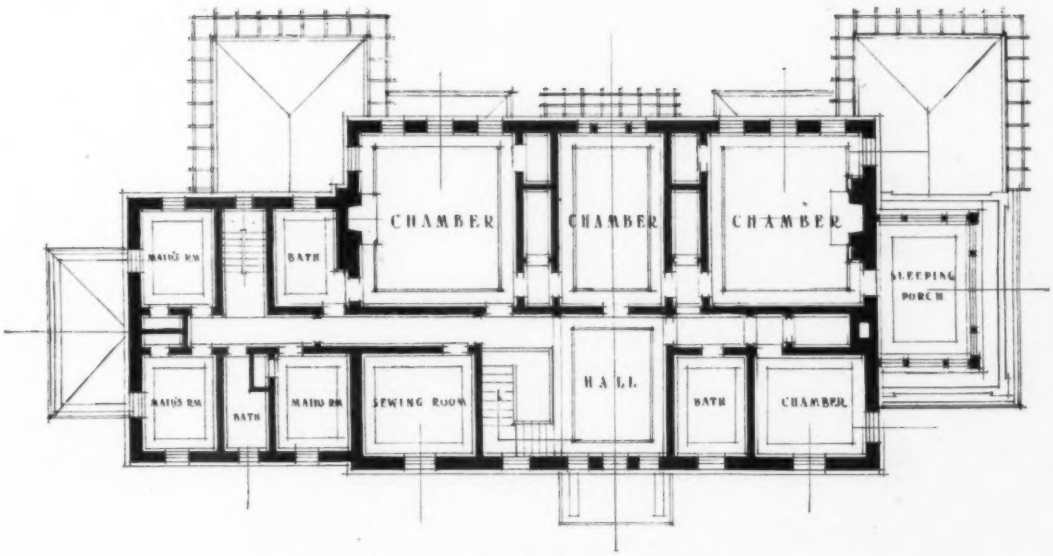
JAMES PURDON, *ARCHITECT*



HOUSE OF E. M. RICHARDS, NEWTON, MASS.

JAMES PURDON, *ARCHITECT*

LIVING ROOM



HOUSE OF E. M. RICHARDS, NEWTON, MASS.

JAMES PURDON, *ARCHITECT*

Current News

Happenings and Comment in the Fields of Architecture and the Allied Arts

Beaux Arts Post

The Beaux Arts Post of the American Legion, Chicago, met at the Art Institute, held its first meeting with 150 former service men and many guests in attendance. A good dinner and several rousing speeches, interspersed with musical selections, made a hit with everyone. Mr. Andrew Rebori spoke on the wonderful opportunity opening up before this post through the union of architecture, sculpture, painting and other arts, with particular reference to the possibility of bringing them together into harmony. Mr. Wick gave an extremely illuminating and authoritative discussion of socialism, communism and syndicalism.

All ex-service men who are interested in architecture or any of the fine arts are urged to attend these meetings either as guests or prospective members. Permanent officers will be elected in the near future, and if the enthusiasm evidenced at the last meeting is any criterion, this is bound to be one of the most active and progressive posts in the city.

Roads in the National Forests

Thirty thousand miles of road, estimated to cost not less than $150,000,000, will be needed for the proper protection and development of the national forests, according to comprehensive road plans which have been prepared, says a recent news letter of the Department of Agriculture. The Secretary of Agriculture has already approved the construction of 5,152 miles, estimated to cost $26,463,000, contingent upon Federal and co-operative funds becoming available. Government expenditures of $15,740,000 have been authorized for this purpose.

The roads comprised in the comprehensive road plans form the basis of the ultimate national forest road system. They are used as main highways, either in connection with through routes or to serve important local needs. The construction of feeder roads is being largely postponed until the primary road system of the national forests is completed.

New Zealand Housing Conditions

Owing to the labor shortage and the building boom in New Zealand and Australia, New Zealand lumber mills are unable to meet the demand, says the Bureau of Foreign and Domestic Commerce in its consular reports. It is therefore expected that New Zealand's importations of American oak and Douglas fir will break all records for last year, as these lumbers are in great demand for the interior furnishing of homes. There is also a marked shortage of Oregon pine.

There seems to be plenty of money for loans for building homes in New Zealand, continues this consular report, which will enable the vast number of homes already planned to be constructed. In fact, the new housing bill passed by Parliament during October provided for substantial loans to workers on a 5 per cent basis with one-half of 1 per cent rebate for prompt payment, for thirty years in the case of wooden houses and 36½ for those of some other materials. The New Zealand Government recently added 1,800,000 acres of provincial forest to the forest reserve, making a total of 10,500,000 acres, but of this the total area of milling value is only 1,371,000 acres.

Building Trades Wages in Middle West

Chicago, Ill.—Building trades workmen in Chicago are better paid on the average than artisans in similar lines in most middle western American cities, concludes the Chicago Daily News after making a telegraphic survey of seventeen of the principal cities in its section of the country. Chicago building trades workers are receiving $1 an hour. Nine of the seventeen cities are paying more for bricklayers and seven are paying a like amount. Carpenters receive $1 an hour in Chicago and are getting higher wages in two other cities, Gary and Omaha, while in twelve cities they are paid less. Plasterers, structural steel workers, plumbers, gas and steam fitters, roofers and painters as a rule are receiving higher wages in Chicago than in other cities. Peoria and Detroit are paying bonuses to secure men. Gary scales are based on Chicago scales, although premiums are being paid there for workmen. Carpenters at Cincinnati are striking now for $1 and $1.25 on May 1; Toledo has a new scale effective April 1 with 25 per cent increase; Omaha which now pays carpenters, bricklayers and plumbers $1.12½ has an increased scale effective June 1.

A number of the cities state that they have no labor shortage now in these trades but expect one when big building commences in the next few weeks. Exceptions are Grand Rapids, Mich., and Toledo, Ohio, where it is said that there is a scarcity in all trades and it is difficult to employ men. Grand Rapids pays carpenters 90 cents, and bricklayers $1.10. The Daily News bases all its figures upon the eight-hour day, and presumably started its investigation because of the assertion of the Building Trades Council that the building trades workers in Chicago have been going to other cities to secure higher wages.

Forest Engineers for India to Make Tour in This Country

A representative of the British Government visited the Forest Products Laboratory at Madison last week to arrange for a later visit of twelve forest engineers whom England is sending to India to establish a forest policy there and to solve problems of reforestation, wood utilization, etc., in that richly forested country. They will make a

tour of the United States in the Summer and will spend some time at the Forest Products Laboratory studying methods, tests, etc.

Keep the Cement Sacks at Work

One empty sack at the cement mill is worth any number of them lying idle in dealers' or users' hands all over the country in so far as shipment of cement is concerned, states the Portland Cement Association in urging conservation of these utilities. Like many other kinds of cotton goods cement sacks are scarce. If every idle cement sack in the country were returned to the plant which sent it out, there would be considerable relief of the present shortage both of cement and sacks.

Besides, cement sacks cost money—money which is not working as long as these sacks are kept idle.

This condition is simply another one of those seemingly trifling items of neglect, which in its own way is contributing to keeping the wheels of industry from moving as regularly and as smoothly as is desired.

If a cement plant ships 1,000,000 barrels of cement a year in sacks, 4,000,000 sacks are necessary to take care of this shipment. Under actual conditions when shipments are made every day, the cement plant at the end of a year would find itself short of a very large number of sacks because dealers or cement users have not returned all they received. The following year it would, therefore, be necessary to supplement the stock of sacks by purchasing new ones. Sooner or later some sacks are certain to be lost through neglect or because put to improper use and thereby permanently kept from being again used as cement containers. No one knows exactly what becomes of them, but it means money lost to the careless user.

Many building and highway contractors have shown commendable enterprise in purchasing and storing during the past Winter large quantities of cement in anticipation of immediate need when the construction season opens. Naturally this has temporarily prevented the circulation of many cloth sacks. Nevertheless, there are enough empty sacks in users' and dealers' possession throughout the country, which, if returned to the cement mills, would make the number held out of circulation through storage of cement relatively insignificent.

Cloth cement sacks represent an outlay of money by the user until he has returned them for credit, and if they are not returned promptly the cement manufacturer must provide for new containers. This represents an unnecessary waste because far more containers must be manufactured and used than would actually be necessary if every cement sack were kept at work.

Finishing Attic Rooms to Relieve Housing Congestion

Housing congestion is so acute in Chicago that the finishing of attic rooms is receiving the attention of building authorities in that city. It is estimated that there are in Chicago about 180,000 attic rooms which can be finished and made livable, accommodating 200,000 lodgers. If these rooms are finished and made attractive at an average cost of $600 each and rented for an average of $10 per month, the gross return would represent 20 per cent on the investment, the total investment being $108.000,000.

While housing laws do not permit the cooking or living quarters in the third story of frame buildings, in which most of these rooms would exist, they might permit of sleeping quarters and the rental would be very modest. The rooms could be properly finished and insulated so that they may not be too hot in Summer or too cold in Winter and halfway measures in remodeling them will not be profitable in the long run. If adequately done, they will assist the permanent resident in meeting higher rent problems and will help relieve the present congestion. The question of finishing attic rooms may be profitably considered by other cities.

By Airplane to San Francisco

Delegates desiring to travel by airplane or dirigible, instead of by special train to the Seventh National Foreign Trade Convention which will be held at San Francisco May 12 to 15, are requested to send in their applications at an early date to O. K. Davis, Secretary of the National Foreign Trade Council, 1 Hanover Square, New York City.

Offer to transport any delegate by means of airplane or dirigible, "from his domicile, place of business or habitation, to San Francisco," is contained in a letter just received from Byron B. Smith, Foreign Manager of the United States Fidelity and Guaranty Company of Chicago, one of the active members of the Aero Squadron Training Corps, Inc., Ill. Mr. Smith has arranged to furnish upon request the exact cost of transportation, pilots' expense, etc.

At the Sixth National Foreign Trade Convention held in Chicago last year, there was a final declaration in favor of promoting commercial aviation and commercial aviation is also expected to play an important part in the program of the coming convention at San Francisco.

Housing Condition in New York

That rent profiteering should be regulated without hampering the ownership of property is the attitude taken by the Real Estate Board in New York, according to advices from the State capital. The legislative representative of this board is quoted as saying, "The housing situation in New York City and in every city in the United States is acute. The high wages forced by organized labor has drawn heavily upon the country workers and has overcrowded the cities. In New York State alone there are over 25,000 vacant farm houses as a result of the drift toward the cities, whereas, in contrast, in New York City 200,000 apartments are needed to meet the demand." Crowded conditions necessitated the construction of 50,000 apartments in 1919 and 1920 in New York City, yet last year only 1,183 new apartments were built. In 1915 there were 934,822 apartments in Greater New York; in 1919 there were 982,015, an increase of only about 48,000 in five years.

Male and Female Shade Trees

This is the time of year when the planting of shade trees is being considered. But care is needed in the species selected, and any city where cottonwoods are used for shade trees must be careful, if danger is to be averted, to plant only male trees, according to the New York State College of Forestry at Syracuse, which has prepared special bulletins on shade tree planting.

The cottonwood is not the only tree which proves the old adage about the deadliness of the female of the species, for the gingko is dangerous in a more serious degree than the cottonwood.

The female of the cottonwood is under the ban of many cities, because of its distribution of cotton, which clings to screens, making them unsightly and generally litters up the locality. In Albuquerque, N. M., for instance, there is a new city regulation providing for the destruction within ten years of hundreds of female cottonwoods and their replacement with male trees.

The female of the gingko species, however, is really dangerous, for its fruits form a slippery and dangerous substance, which is actually dangerous to pedestrians when thickly strewn upon a walk, and to some people the fruit is actually dangerous to the touch. This is so generally recognized that only the male of this species is planted in New York State

Fuel Value of Wood

Two pounds of dry wood of any non-resinous species have about as much heating value as a pound of good coal. Speaking in tons and cords, a ton of coal may be taken as the equivalent in heating value of one cord of heavy wood, one and one-half cords of medium-weight wood, or two cords of light wood.

The following table, resulting from research of the Forest Products Laboratory, Madison, Wis., is an approximation of the number of cords of seasoned wood of various kinds needed to give the same amount of heat as a ton of coal, on the basis of 80 cubic feet of wood, with a moisture content of 15-20 per cent. to the cord:

1 cord	hickory	ash	= 1 ton coal
	oak	elm	
	beech	locust	
	birch	longleaf pine	
	hard maple	cherry	
1½ cords	shortleaf pine	Douglas fir	= 1 ton coal
	western hemlock	sycamore	
	red gum	soft maple	
2 cords	cedar	cypress	= 1 ton coal
	redwood	basswood	
	poplar	spruce	
	catalpa	white pine	

Resin gives twice as much heat as wood, weight for weight. Hence such woods as the pines and firs have more heating power per ton than non-resinous woods. The resinous woods in the table are considered as having an average amount of resin (15 per cent).

The fuel value of wood depends in many cases not alone upon its heating power, but also upon such qualities as easy ignition, rapid burning, freedom from smoke, and uniform heat. As a rule soft woods burn more readily than hard woods, and light woods more readily than heavy woods. The pines give a quicker, hotter fire and are consumed in a shorter time than birch; whereas birch gives a more intense flame than oak. On the other hand, oak gives a very steady heat.

Town of Biltmore Sold

Sale of Biltmore, near Asheville, N. C., built nearly a quarter of a century ago by the late George W. Vanderbilt as a model town, was announced. The amount for the town adjoining Mrs. George W. Vanderbilt's Summer home of the same name was not announced. The Southern Railway is said to have plans for a $2,000,000 passenger station for Asheville on the Biltmore site.

Business "Art" Criticized

Joseph Pennell spoke at a recent luncheon of the Poor Richard Club on "Art and the Business Man." When he had finished his attack on billboards, posters, newspaper comics, advertising and magazines, he was answered by Karl Bloomingdale, vice-president of the club, who said Mr. Pennell's speech was like mince pie—he liked it immensely but it did not agree with him.

"The billboard is the curse of America," Mr. Pennell said. "The United States has been grabbed by a gang of thieves and robbers, who have robbed it of its beauty. It is as much a crime to steal beauty as it is to steal a man's pocketbook."

Making Use of the Landscape

Automobiles get people out into the landscape, writes Frank A. Waugh in *Civic Comment*. That is one of their greatest services to society. Here are a few figures to show the extent of such recreation. They are taken from a private letter from one of the national forests officials in California. He says:

"My entire Summer was devoted to recreation work in the field. California had the greatest Summer recreation crowd ever known. Every resort and camp was full to overflowing. We estimate that one million people visited the forests of California the past season. About 90 per cent of the forest travel was by auto; the remaining 10 per cent by train, horse vehicles or on foot. The auto parties averaged about four persons per machine, and about 85 per cent of the forest travelers were campers, and the other 15 percent stopped at resorts and hotels. To give you an idea of the travel on special occasions, the auto visitors to Lake Tahoe on July 3 and 4 may be cited. By actual count, 10,000 automobiles went to the lake on the Lincoln Highway on the above dates This is *some* travel for mountain roads that reach elevations of 8,000 feet. Our camp grounds were entirely inadequate to handle the crowds, and we are now developing more camps as rapidly as funds will permit."

From which report many important inferences may be drawn, such as: The public like a good landscape when they can get in a combination of good public reservation and good roads works most satisfactorily; the work of public foresters in providing good safe camp grounds meets a large need.

Illinois Chapter, A. I. A., Meeting

The March meeting of the Illinois Chapter, A.I.A., was well attended, the special business for the evening being the election of delegates to the annual convention of the institute at Washington, D. C., May 4, 5 and 6 next.

Delegates chosen are: I. K. Pond, past president, ex officio; Richard E. Schmidt, director, ex officio; Henry K. Holsman, chapter president, ex officio; Albert Moore Saxe, chapter secretary, ex officio; N. Max Dunning, F. E. Davidson, Herbert Foltz, Charles Herrick Hammond, Emery Stanford Hall, Elmo C. Lowe, George W. Maher, Victor A. Matteson, George C. Nimmons, Dwight H. Perkins, Frederick W. Perkins. Alternates in the order of their election John A. Armstrong, John Reed Fugard.

The meeting passed a resolution asking that the City Council take no action on the proposed height of buildings ordinance until the proposed zoning commission had reported.

The business session was followed by an illustrated lecture on "Egyptian Art and Architecture," by Dr. Thomas D. Allen, of the University of Chicago.

New York Society of Architects

The March meeting of the New York Society of Architects was held on the evening of the 16th.

Among the matters discussed was the Dodge-Leninger bill now before the New York Legislature conferring on the Board of Appeals the power to reverse orders of the Tenement House Commissioner. The Tenement House Committee of the society was ordered to take up the question of the creation of a Board of Appeals from decisions of the Tenement House Commissioner.

Attention was called to the bills now pending at Albany providing for increased interest rates on mortgages. It was the sense of the meeting that this would be most unfortunate, as it would raise rents still higher. The society will have a representative at the hearing to speak against this bill.

A nominating committee was appointed to select candidates for office for the coming election at the annual conference in May.

New York to Take Possession of Niagara Gorge

A bill providing for the resumption by the State of the water power of the Niagara gorge has been prepared under the auspices of the Conservation Commission and will be pressed to passage.

The bill provides for a bond issue of $15,000,000, which will necessitate a referendum. If the bond issue is authorized, it will enable the State to proceed with the development of one of the most economical and largest water power projects in this country. One hundred and sixty-five thousand horsepower will be generated, which will overcome the acute shortage of power in all of the western part of the State, and will insure an adequate return to the State treasury from this great natural resource.

The proposed legislation corrects the mistakes of the legislatures of 1890, 1893, 1894 and 1902, which gave away absolutely free the most valuable water power rights of the country, and thus is similar in its results to the cancellation of the diversion rights in the Long Sault of the St. Lawrence.

Unless the State can regain control of the waters of the Niagara gorge, the companies chartered years ago, but unproductive for a quarter of a century, will remain in complete possession of their unearned privileges, and, if these companies can obtain permits from the Federal Government they will reap returns which ought rightfully to go to the people of the State.

The program provides that the State sell the power to the highest bidders, preference being given to municipalities. The State would thus not enter upon the complicated experiment of distribution, leaving that to private enterprise or municipalities, and confining its own work to the comparatively simple operation of the power plant.

Annual Convention of the American Civic Association

The sixteenth annual convention of the American Civic Association will be held in Amherst, Mass., October 13, 14 and 15, 1920. The meeting will be held as a part of the fiftieth anniversary celebration of the Massachusetts Agricultural College.

Because the village of to-day will be the town of to-morrow, important attention will be given to the subject of country and village planning. Massachusetts and the neighboring New England States afford splendid examples of the ideal village. Interesting and instructive automobile trips will be planned for the delegates and historic towns in the neighborhood of Amherst will be visited. The character of the program, emphasizing, as it will, rural and village improvement, will be in interesting contrast to the program of the fifteenth annual convention, which dealt almost exclusively with the question of the big city. The program committee has recently been appointed, with Dr. John Nolen, of Cambridge, Mass., as chairman. Dr. Nolen will be very glad to receive suggestions for special features of the program. The tentative program will be issued early in the Summer.

Personals

C. E. Richardson, formerly of McKim, Mead & White, and later with Bliss & Faville, of San Francisco, has accepted a position with Messrs. Temple & Burrows, architects, of Davenport, Iowa.

William J. Todd and Harry T. Miller have formed a partnership as architects and engineers, with offices in the Masonic Building, Phoenix, Ariz. They desire to receive trade literature and manufacturers' catalogs, samples, etc.

Erle J. Osborne, 2026 Jackson street, San Francisco, has opened offices at 821 Balboa Building, San Francisco, for the practice of architecture.

James H. Hoose, formerly of Bakersfield, is now practicing architecture in Modesto. His address is 818 Thirteenth street.

Ralph Wyckoff, of Salinas and Watsonville, Cal., and Hugh C. White, formerly with Lewis P. Hobart, have formed a partnership for the practice of architecture, with offices in Salinas, Cal.

Charles Howatt Biggar has resumed the practice of architecture in Bakersfield, Cal., after serving Uncle Sam for a period of two years as an officer in the Engineers' Corps. Mr. Biggar would like to receive catalogues and other trade literature from manufacturers of building materials.

Charles F. Masten and William W. Hurd have formed a partnership for the practice of architecture, and have taken offices on the sixth floor of the Foxcroft Building, San Francisco.

Koch & Wagner, architects, have moved from 26 Court street to the Chamber of Commerce Building, 32 Court street, Brooklyn, N. Y.

Wm. H. Mersereau, architect, has moved from 32 Broadway, New York, to Oakwood Heights, Staten Island, New York, where catalogues are desired.

George Awsumb, Chicago architect, has become associated with Charles O. Pfeil, 1403 Union & Planters Bank Building, Memphis, Tenn., under the firm name Charles O. Pfeil, architect, George Awsumb, associate. Catalogues are requested.

Warren W. Day has returned from overseas with Les Foyers du Soldat of the French Army and has reopened offices at 527 Main street, Peoria, Ill.

Weekly Review of Construction Field

Comment on General Conditions of Economics With Reports of Special Correspondents in Prominent Regional Centers

THERE is no doubt but that the method of financing home construction which is known as "The Detroit Plan" is proving to be the most practical and influential yet conceived. It is a plan not conceived upon philanthropic grounds, but within strictly business lines. It is not an emergency measure for a temporary good, but the plan of an institution which is to be of permanent value to the community and which expects to pay a reasonable profit to the investors. To everyone it has been only too apparent that there is a sentimentality in the minds of many who discuss the building problem. The movers of the Detroit Plan, however, have steered an even course between this danger and the fault of the hard and fast system already in existence in the American cities. They have recognized that there is but one possible way to provide houses for a certain number of the people in a large industrial center and that is to build them and give them to such people on some rent paying basis.

The corporation, which has a capital of three million, has twenty-seven directors representative of the manufacturing, industrial and banking interests of the city—meeting monthly. There is an executive committee of six which revolves out of the directorate, two every four months—meeting weekly. The officers are a President and General Manager, Vice-President and Treasurer, Vice-President and Secretary, the President and Treasurer being continuously active in the business.

Subscriptions to the capital stock were secured at a series of luncheon meetings to which a selected list of business men and financiers were invited. The method of apportioning the subscriptions has been that the manufacturer or business man has subscribed on the basis of the number of men and women employed in his office, store or shop:

For the first 500 or any part, at	$25.00 per employee
For the next 501 to 1000 at	20.00 per employee
For the next 1001 to 5000 at	15.00 per employee
For the next 5001 to 20,000 at	12.50 per employee
For over 20,000 at	10.00 per employee

There are two general divisions of the business: the Financial Division and the Division of Plans and Contracts. Under these divisions are several sub-sections such as an Application and Developing Department to receive and investigate applications as to credit, employment, lot engineering and lot appraisal; a Legal Department for passing upon and making all necessary papers; a Clearance Committee: a Loan Committee and a Securities Department for the handling of securities used in revolving the funds. In the Plans and Construction Division there is a section for making plans and specifications, one for contracts and estimates and one for building and inspection.

The plan does not finance the completion of houses already in the course of construction and grants no loans unless the corporation controls and supervises the building operations. For the present loans are confined to an amount not in excess of $6,000 for a single house. All interest charges are at the rate of 6 per cent.

THERE are three general classes of business: The Banking Plan, the Operation Plan, and the Contractors' Financing Plan. The Banking Plan is for those applicants who either own lots or who wish to purchase a lot in some specific locality. Such applicants are not restricted in the use of building plans; they must, however, submit bids from recognized contractors that will establish the fact that the desired house is to be built at a price covered by such amount of money as is authorized as a loan. If there is uncertainty as to the ability of the contractor, the corporation's estimator secures competitive bids. If the bid is higher than the authorized loan, no attempt is made to alter the applicant's plans so that the price may be reduced, but the corporation presents one of its own plans for a building which can be erected within the allotted amount.

The corporation loans up to 80 per cent of the total amount involved in the transaction as represented by the combined appraised value of the lot and cost of the home. The applicant deeds his lot to the corporation, loan is then made and contract of sale is made between the applicant and the corporation for an amount covering both the value of the lot and the building to be placed on it, the applicant being credited with the appraised value of his lot and any additional cash that he may have paid.

The houses are built as a rule under standardized plans, and it has been found that the savings in some cases have amounted from twelve to fifteen hundred dollars on a six thousand dollar operation.

It is thought that the payment for the home should be accomplished in ten to twelve years. The client also pays the expenses of the transaction, which are figured to amount to $67.50, within the first year; if paid in cash at the time of signing the contract a cash discount of 5 per cent is allowed.

The Operation Plan: In order to get houses erected more quickly, the corporation purchases vacant lots and erects groups of houses simultaneously which are disposed of to applicants at prices from $3,500 to $4,500 under the same general provisions as in the Banking Plan.

The Contractors' Financing Plan: The savings banks and trust companies are unable to fully meet the extraordinary demand for first mortgage loans, therefore the corporation is prepared to finance contractors on new operations by advancing cash to them. The building plans must be acceptable and the operation subject to general examination and inspection. Loans are not considered where the price of a single house is in excess of $6,000 and the basis of all loans is upon the appraisal by the corporation considered in connection with the cost figures to which is added a profit of approximately 15 per cent, this total constituting the sale price of the property.

Loans are made on contractors' collateral notes for periods not exceeding three years at 6 per cent per year, payable semi-annually:

65 per cent on the sale price of the property when 10 to 15 per cent down payments are made;

70 per cent on the sale price of the property when 15 to 20 per cent down payments are made;

75 per cent on the sale price of the property when 20 to 25 per cent down payments are made.

Deed and land contract covering the sale of property is to be assigned and deposited with the corporation as col-

lateral for the loan. Monthly payments of not less than 1 per cent of the sale price, less the down-payment, are required. At the time of closing the transaction the contractor pays all legal deepartment charges.

Contractors buy their own lots, building the type of house with which they are most familiar and provide their own market for its disposal. It is necessary, however, for the contract to have the approval of the corporation as to location and type of house and to show a home owner as purchaser and not a prospective speculator.

ON September 20th, 16 houses were contracted and 10 under construction; on December 20th, 550 houses had been contracted, 300 were under construction and 91 were completed.

The report of the President of the House Financing Corporation to the stockholders says: "Our organization, as now operating, can project its activities in an almost unlimited manner, thus making it possible to fully meet the housing requirements. The whole effort is limited only by the amount of capital that is available. Such capital can find the safest kind of investment through this enterprise, backed by a type of collateral that is beyond question and on which it can earn at least 6 per cent per annum from the date of investment. It is difficult to imagine how capital could be invested in a safer way, and could, under any circumstances, accomplish greater good for the city as a whole and many individual house builders in particular."

(By Special Correspondence to THE AMERICAN ARCHITECT)

CHICAGO:—Strikes of stockyard employes, railroad switchmen, and city hall employes; increase in wages to members of the building trades unions of from $1 to $1.25 an hour; steady increase in lumber prices; a boost in money rates to the legal state limit of 7 per cent; and a suggestion from local economists that voters should decline to approve additional municipal issues for public works do not furnish a very rosy outlook to the general situation in Chicago this week.

And yet last week's real estate transfers broke all previous records, totaling more than 2,000 with an aggregate consideration of $6,000,000, or $3,000,000 above last year.

Not the least interesting feature of the whole situation is the undoubted fact that the shortage of labor is primarily a result of the shortening of the working day and the decreased efficiency of labor. Leading contractors say that no reduction in the cost of construction may be expected for a long time. The continued shortage of cars, high wages, and limited production have caused many to urge those contemplating building to build now. Nevertheless, it is generally known that promoters of many large projects are seriously considering abandonment of their plans.

The "vicious circle" of high prices and high wages continues. People are spending as never before, apparently under the impression that the present level will be maintained indefinitely. That there is a shortage of labor is generally admitted, as is the fact that production falls far short of the demand. It is safe to say that conditions are not growing any better. It should also be added that there is evidence of growing unrest here during the last week. Incidentally, in the clothing trade, pocket makers are now threatening a strike unless given an increase in pay.

Chicago, with its enormous alien population, reflects the labor situation more nearly than any other large city in the country and is the first to feel the effeect of the steady emigration to Europe.

(By Special Correspondence to THE AMERICAN ARCHITECT)

SAN FRANCISCO:—The "own your home" movement seems to be gaining impetus here. Whether this is due substantially or even indirectly to the vigorous campaign which has been waging in San Francisco for the past few weeks against alleged rent profiteering, particularly on the part of downtown apartment houses and hotels cannot be ascertained, but this reflection on downtown housing facilities is held responsible by some of the building interests for the marked interest shown in residential properties in the outlying districts.

Several large building projects have been announced during the past week for extensive development work in desirable residential sections of the city. Prominent among them may be mentioned the plans for the erection of one hundred and fifty new homes in the Sea Cliff district. Over $90,000 is being expended in paving the streets and the building of sidewalks and curbs in conjunction with this development project. Plans have been completed for some of the new homes, and others are in the hands of the architects, prices ranging from $20,000 to $30,000 on many of them. It is announced that the materials entering into the construction of the higher class residences will be of exceptional quality. Instead of the customary white pine, Southern gum, and other woods used in low-priced houses mahogany will be employed in many cases.

While the situation is easing up a little, as far as getting supplies of certain materials is concerned, this feature of the building program here is still causing more or less uneasiness. Steel deliveries are slow, the lumber supply is low, and the brick and tile plants in the vicinity, on which the local market is dependent for supplies, report a rush of business which makes it difficult to keep up on deliveries.

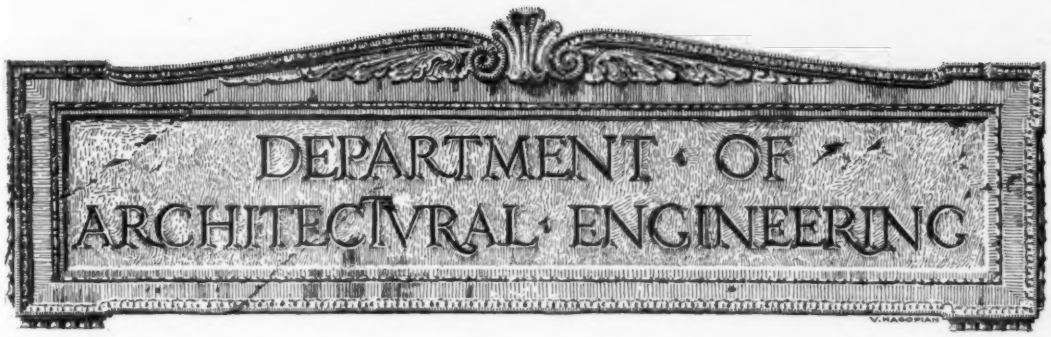
(By Special Correspondence to THE AMERICAN ARCHITECT)

SEATTLE:—Weakness in the fir lumber market, firmness in steel products, particularly as to small essentials, refusal of the mills to accept new orders preceding the third quarter of the year and a slowing down of the business and home construction demand, were the outstanding events of the week in the construction life of the North Pacific Coast territory.

Prices generally have remained rigid without perceptible fluctuations in costs, although the difficulty of getting delivery has not softened. Jobbers report a slowing up in the inquiry for brick, cement, plaster board and tile. Labor is plentiful, and there are today no perplexing industrial problems for the employer. Bank clearings locally indicate a reduction in unnecessary expenditures, and, while financial men regard the symptom as a healthy one, they realize that it is not ultimately conducive to great construction work.

The most baffling problem of all for the jobber of building essentials is that of all kinds of nails, particularly the smaller sizes. Eastern mills, pressed for their attitude, state that they are not eager for orders for finer grades when they can move capacity production in the larger materials.

Jobbers who have perennially led and who have taken their profits on the volume basis are receiving a carload of nails every two weeks, but this delivery is made from the warehouses on emergency and business is not being accepted for shipment on arrival. It is necessary to distribute the pittances to many jobs. Similar conditions prevail as to the pipe trade, although it has become difficult now to secure both large and small sizes. Steel bars are slow in arriving, and must go under the ration plan. Nails advanced 50 cents per cwt. this week.



The Expense of Estimating*

Present Methods of Duplication of Effort in Estimating Involve Tremendous Waste—Quantity Survey Should Be Furnished by Owner With Plans and Specifications—Would Eliminate Needless Expense and Insure Uniform Basis for Bidding

By HENRY K. HOLSMAN, PRESIDENT, ILLINOIS CHAPTER OF THE A. I. A. CHICAGO

YOUR chairman has asked me to talk to you about the architect's attitude toward the "Expense of Estimating." I need not say to you as a body of contractors that the architects as a class are bound to be conservative when it comes to adopting some new way of doing things. There is always apprehension that any change is urged for the advantage of somebody else. For a good length of time a proposal may be questioned to see whether there is really anything in it that is of general good, or that would not be of some particular advantage to those who make the proposition.

The architect's attitude in general toward innovations might be likened to the attitude that is generally considered characteristic of the people of Italy. A number of years ago when I superintended a building here in Chicago, I had reason to come in contact with workmen of this nationality, and my own observations were borne out by those of my superior who had had a great deal of experience. When one Italian sees two other Italians talking or discussing something, he immediately imagines that they are hatching some conspiracy against him.

There are many of us who have been for a long time trying to break down some of the prejudices in the minds of the architects opposed to co-operating with the builders, and also opposed to meeting and co-operating with the laborers and helpers.

*Address given before the Building Contractors' Division of the recent National Conference on Construction of the Associated General Contractors of America.

TREMENDOUS WASTE IN ESTIMATING

ARCHITECTS have realized for a long time that there is a tremendous amount of waste in the present method of making up estimates. The burden is said to be borne by the contractors, but as a matter of fact the contractors as a whole must pass it on to the community, and the architect is justified in co-operating with you in an effort to eliminate that waste as soon as possible, on the ground that it would eliminate an unnecessary charge against the community. When the architect fails to take off the quantities for a job before giving out the plans to ten different contractors and asking for bids, the estimating that must be done on that one job is ten times more estimating than would have been necessary, so far as quantity is concerned, if the architect had given the contractors a survey of the materials that would be required to be left in place in the building when the building is finished.

Now, the cost of estimating, or expense of estimating, in our judgment cannot be entirely eliminated from the contractors' expense. The cost of selling your product, your experience, your ability, must be borne by your trade much the same in contracting as in selling any article of merchandise.

The situation of the buyer in the building field may be summed us as follows: Presumably the owner has gone to the architect and has had the architect make plans and specifications for approximately the kinds of materials he wants to get. He then hands these plans and specifications to the contractor for his experience in estimating and for putting together a structure so that it can

be used efficiently. In that case the owner has set down the kinds of material that he wants, and has presumably paid for that much of the cost of selling as distinguished from the prices ordinarily employed in the commercial world.

But he still falls a little short in our estimation. He gives the contractor plans and specifications laid out in the general way, but he might have gone into the estimating end of the matter and given the general contractor a quantity survey of the plans and specifications, which would make it much easier and less hazardous for the seller to price the commodities.

Conclusions of Joint Conference

IT is with that thought that the Joint Conference on Payment for Estimating Construction Work, which is composed of a committee of your organization, one from the American Institute of Architects, and one from Engineering Council, formulated the resolutions that I shall now take up. Two meetings were held by the Conference, at which the subject of the expense of estimating was discussed at great length. The resolutions adopted are as follows:

WHEREAS, there is great economic waste in the present usual methods of individual estimating of the same quantities by several different bidders on the same project, therefore

Be it resolved, that the following are the conclusions of this conference:

First, That any system of duplication of effort in estimating, wherein each bidder separately estimates the quantities, should be condemned.

There are many reasons, which you know better than I, why such methods of estimating should be condemned. But what comes to my mind just now as most important is that the largest part of the great variation in bids on a structure is not due to the difference in prices that contractors place on materials, but is due to the variation in the estimates of the quantity of material and labor that would be necessary to carry out the plans and specifications. The commonest complaint is: "I got that contract because I made a mistake—I left out the floor." That alone is enough to show that the system should be condemned—that it is an economic waste.

Then, if there is an average of ten bidders on one job, or if every contractor on the average must bid on ten jobs to get one, manifestly there is ten times as much effort expended as is necessary. It is also manifest from our point of view that if the quantities for the job were taken off in a systematic manner according to a system universally adopted by the contractors, and if the quantities were taken off under the supervision of the architect who makes the drawings and the specifications, the quantities then would be more apt to correspond with what is expected by the architect than if they were taken off by some individual who never saw the tracings and specifications before.

If it is specified that all contractors shall bid on this bill of quantities, or on this quantity survey and none other, they have at least one common thing fixed. Under the present method, each bidder may submit a proposal on a different schedule, based upon the way his estimators have interpreted the plans and specifications, and upon the care taken to include everything called for.

Recommend Furnishing Schedule of Quantities

THE second section of the resolutions is as follows:

All competitive bids should be based upon a detailed schedule of quantities prepared from a survey of the plans and specifications, and submitted therewith, the costs of the preparation of such survey of quantities to be borne by the owner.

The only comment I have to make on this is that we all agree that if the buyer, the owner, is going to go to the trouble of having the plans and specifications prepared, it is logical that he should go further and get a comprehensive bill of material of quantity survey that could be easily priced.

In considering the value of a quantity survey, we realize that it will be necessary gradually to work out a standard practice. Quantities must be so listed that the bidder, when he uses them in preparing his bid, along with the plans and specifications, can understand just what will be needed, and can judge accurately as to the labor cost of the work.

The third part of the resolution bears upon payment for pricing the work and states:

While the owner should furnish a quantity survey as the basis of bids and contracts, and should submit them with the plans and specifications, and should pay for the same amounts to the bidder, the bidder should make no charge to the owner for submitting proposals based on said plans, specifications and quantity survey.

While the owner should furnish a quantity survey to contractors as a basis of bids, we do not feel that, in addition to this, he should pay each contractor for pricing the quantities and for the various items of overhead that bidding on projects entails.

There is undoubtedly an economic gain resulting from the preparation of a quantity survey by only one individual or institution instead of by five or ten as the case may be, provided these quantities are guaranteed to be correct enough for bidding purposes. Even if the quantity survey says that there is less material required by the plans and specifications than will be necessary, so long as it affords an equitable basis for bidding, it has served its purpose in a large measure. Adjustment of the

contract price may be made to correct errors to correspond to actual conditions, either before the contract is signed or as the work proceeds.

But when the owner and buyer has gone that far, he says, "This will do for the basis of bidding; here is something that you can give us your prices on. But we feel we ought not to go further as buyer, and so we will not pay you for putting prices on these quantities."

In other words, if we were to say that the owner should pay a contractor for his trouble in figuring up his prices and bidding, we would be going too far. The accepted principle in commercialism is that the cost of selling a product be added to the price charged the buyer, but only in case he does actually buy. Our first step is to say, then, that bidders should make no charge to the owner for submitting prices on his building project, provided the quantities are furnished.

Without Quantities, Pay Each Bidder

IN the last section of the resolutions, an alternative is proposed whereby each contractor would receive pay for his estimate if he had to prepare his own quantities.

In general, competitive bids should not be invited nor submitted on projects, the plans and specifications for which are not accompanied by a quantity survey, unless the owner agrees to pay a predetermined fee to each bidder for preparing the quantities and submitting an estimate.

This clause, I think, was finally determined upon as a suggestion of co-operation between the builders and architects by way of helping to get the thing established.

Now, you see, if we could agree upon these principles, and have it recognized that they are just and fair to the contractor and the architect, and have them widely known, we could accustom those interested to the idea that unless the plans and specifications are complete, and include a quantity survey, they are not yet ready for bids. This would mean a long step toward reducing some of the errors in bidding and the estimating expense under the present method of bidding.

In conclusion, I want to point out that there were three architects, two engineers and three contractors in this Conference, and particular pains were taken that our conclusions should be unanimous. I think all these resolutions were adopted unanimously by the Joint Conference.

The following resolution was that submitted by the committee on Resolutions and adopted by the National Conference:

Resolved, That the progress report of the joint conference of the American Institute of Architects, Engineering Council and the A. G. C., on payment for estimating construction work as submitted to the annual meeting by the Committee on Methods, be adopted.

Recommendations of Joint Conference on Payment for Estimating

THE complete progress report as approved at the second meeting of the Joint Conference follows:

Place—Old Colony Club, Hotel La Salle, Chicago, Ill., Feb. 16, 1920, 2:30 p. m

Present—Representing the American Institute of Architects: Messrs. F. W. Perkins, Henry K. Holsman and Richard E. Smith. Representing Engineering Council: Messrs. T. L. Condron and Samuel G. Neiler. Representing the Associated General Contractors of America: Messrs. A. P. Greensfelder, H. L. Wells and W. E. Hanson.

This meeting followed a preliminary meeting of the conference held on November 16 and adjourned to this day

The following statement of the purposes of the conference was presented by the chairman, A. P. Greensfelder:

PURPOSE OF CONFERENCE

"(1) The present cost of estimating construction, including unnecessary duplication of effort in taking off quantities, a large amount of useless estimating on projects which do not go ahead, and the losses sustained by contractors due to inaccurate estimates, is too great and should be reduced. With proper action on the part of architects, engineers and contractors it is estimated that at least two-thirds of this cost could be saved.

"(2) Inefficient methods and inequitable distribution of the cost in making estimates and in securing bids are largely responsible for the waste that exists in estimating.

"(3) The needless confusion and questionable practices that have recently developed in local bidding methods in an attempt to solve the problem may be eliminated by a mutual national understanding; and finally

"(4) Due to the increasing demand from many localities for the elimination of unnecessary expense in submitting estimates and a better allocation of said expenses, this subject calls for immediate consideration.

"The following statement of methods in vogue at present is submitted:

METHODS NOW IN VOGUE

"(1) To solve these difficulties, many contractors, in supplying their own quantities and estimates are now combining to include the cost of such combined estimates in the bids submitted, either with or without the knowledge of the architect or engineer.

"While this plan reimburses the contractor for the cost of estimating and partially allocates same to each project, it does not reduce the duplication of effort or expense, but rather adds to it due to the necessity of a broker or agent as collector. It does not, however, allocate the cost of jobs which do not proceed or wherein all bidders are not members of the collection bureau or co-operating therewith. Furthermore, this system in the hands of unscrupulous men is open to abuse in that it may be operated secretly without the knowledge of either architect, engineer or owner, and thus made a method for charging whatever 'the traffic will bear,' and unduly increasing the number of bidders, some of whom bid only for the payment thus received. Both of these conditions may tend to cause an unfair assessment to the owner.

"(2) A second solution which is less commonly used at present is that whereby the several bidders secure their

quantities from a central survey bureau and supply estimates in return for a fixed charge which is included in their bids. This plan reduces the actual cost of estimating by concentrating the work of estimating, by providing a uniform quantity basis for estimating, and by partially allocating the expense of estimating on those jobs which proceed. It is not in general favor because, since contractors must be responsible for the survey quantities, they most frequently prefer to furnish their own estimates either in entirety or as a check on the quantities submitted by the central agency. The result is that each contractor more frequently supplies his own estimate, reverting to Method 1 above, or the present inefficient method of taking care of cost of estimating by charging it entirely to the general overhead.

"(3) A third plan which has proved highly successful provides that the owner shall furnish quantities as the basis for the bid and contract and that the owner shall pay the contractor the cost of estimating labor, pricing the quantities and performing other professional services in connection with submitting the bid. This plan reduces the cost of estimating to the owner in direct proportion to the number of bidders and further reduces it by forcing jobs which do not go ahead to bear their proper charge for estimating. Instead of charging the cost of estimating from 10 to 20 jobs which do not proceed to those which do, as overhead, this method allocates the cost of each project where it belongs. It provides also a uniform quantity basis for comparing bids, although not a uniform measure of quality, service, skill, honesty or responsibility. It insures greater accuracy on the part of the contractor in bidding and enables the architect or engineer to render better service to the owner. It gives the architect or engineer a proper share and control in the selection of the contractors who bid and in the whole process of estimating. It is a plan applicable to public work."

Following a discussion of these statements, these resolutions were adopted:

RESOLUTIONS

WHEREAS, there is great economic waste in the present usual methods of individual estimating of the same quantities by several different bidders on the same project; therefore, be it

Resolved, That the following are the conclusions of this conference:

(1) That any system of duplication of effort in estimating wherein each bidder separately estimates the quantities should be condemned.

(2) That all competitive bids should be based upon a detailed schedule of quantities prepared from a survey of the plans and specifications and submitted therewith, the cost of the preparation of such survey of quantities to be borne by the owner.

(3) That while the owner should furnish a quantity survey as the basis of bids and contracts, and should submit them with the plans and specifications, and should pay for the same, the bidders should make no charge to the owner for submitting proposals, based on said plans, specifications and quantity survey.

(4) That in general competitive bids should not be invited nor submitted on projects, the plans and specifications for which are not accompanied by a quantity survey, unless the owner agrees to pay a predetermined fee to each bidder for preparing the quantities and submitting an estimate

RECOMMENDED PRACTICE

This conference proposes to prepare and present at a later date an outline of recommended practice in conformity with the above resolutions.

PHILADELPHIA CHAPTER ACTS

At the meeting of the Philadelphia Chapter, A.I.A., held March 8, 1920, Mr. D. K. Boyd presented a motion, seconded by Dr. Laird, that the resolution adopted in Special Conference assembled at the invitation of the Associated General Contractors of America, and in which conference were represented the American Institute of Architects and the Engineering Council, be adopted by the Philadelphia Chapter, and same be referred to the Committee on Public Information to be forwarded to the Secretaries of all Institute Chapters. This motion was carried.

Engineering Council Bulletin

Super-Power Investigation, as proposed by the Secretary of Interior, was urged before the House Committee on Appropriations March 16 by Engineering Council's Committee, composed of W. S. Muray, A. I. E. E.; L. P. Breckenridge, A. S. M. E.; D. C. Jackson, A. I. E. E., and M. O. Leighton, A. S. C. E. Details of the advantages to the Boston-Washington industrial district through the use of hydroelectric, tidewater steam and mouth of mines steam power were emphasized—especially the fact that at least $300,000,000 could be saved each year. The House Committee showed unusual interest in this plan.

Topographic mapping appropriation, to the extent of $600,000, was urged in the hearing given M. O. Leighton, A. S. Baldwin and others, who appeared in behalf of the engineers. This is the appropriation that engineers from all sections of the country have been urging. It contemplates a complete topographic map in twelve years. The program for the use of this appropriation has the sanction of the Board of Surveys and Maps.

Army Reorganization Bill passed the House March 19, providing for continuation of Chemical Warfare Service and a strong Signal Corps. Amendment to maintain separate Construction Corps, which had been passed March 12 by vote of 135 to 74, was reversed by vote of 168 to 158. Present status of bill will retain Construction Corps and Motor Transport Corps in Quartermaster Corps.

Navy Appropriation Bill reported recommending $425,000,000 against $550,000,000 estimated. Navy "Bureau of Steam Engineering" was changed to "Bureau of Engineering," having charge of practically every class of navy engineering work

Coal Production and Distribution has been covered by three bills introduced by Senator Frelinghuysen, designed to remove existing evils of inequality and instability in producing and distributing coal

Reclassification and Compensation of Federal Employees covered by complete report submitted to Congress by Keating Commission, March 12.

National Screw Thread Commission has been extended for a period of two years. This was assured when the Senate passed H. J. Res. 299 on March 18, following similar action by the House.

The Fundamental Principles of Illuminating Design

II. Light Distribution

EXPERIENCE has shown that the bare lamp is not the most effective method of utilizing light. It has two major objections.

First: The intensity of the light source is detrimental to vision; and *Second:* A large quantity of the light produced is not directed where illumination is desired. The first objection may be neglected when the lamp is so placed as to be out of the ordinary line of vision, but the bare lamp will till represent an economic waste.

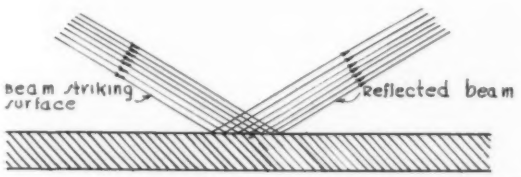


FIG. 1. REFLECTION. THE ANGLE OF INCIDENCE AND OF REFLECTION ARE EQUAL

Therefore, in order better to utilize the light produced by a source, various accessories, in the nature of reflectors and enclosing glassware, are resorted to, their purpose being not only to redirect such rays of light as would otherwise be ineffective, but also to modify the brilliancy of the light source, diffusing the light in such a way as to produce a soft and restful effect.

Three distinct systems of illumination are now in common use, termed direct, indirect and semi-indirect lighting. In some cases these are modified by employing enclosing glassware for diffusion. In the direct system, the fixture employed directs all light downward; in the indirect the reverse method is employed, the fixture sending all light rays upward on the ceiling from which they are reflected to all parts of the room, as well as being well diffused. In the semi-indirect, part of the light is reflected on the ceiling while some passes directly into the room through the bowl of the fixture, which also diffuses it.

In studying the subject of distribution of light it is well to bear in mind a few of the underlying principles of light. A ray of light will travel in a straight line, to infinity, unless meeting interference. The imposition of interference may change the direction of the light, or it may change its nature. For instance, when a ray of light strikes a mirrored surface it is reflected, whereas if it impinges on a black surface it is absorbed, but in this process heat is produced, so that although no actual loss is suffered, the form of energy is changed. A third form of interference is termed refraction. This occurs when light passes from one media into another of different density, in which case the light ray is bent. This is well illustrated by the apparent bending of a fish line where it enters the water. A fourth form of interference is known as diffusion, and consists of breaking up the beams of light and spreading the rays in all directions. By the correct control of these four forms of interference, viz.; reflection, absorption, refraction and diffusion—it is possible to produce any desired light effects. Figures 1 to 5 illustrate these forms of interference.

Co-Efficient of Utilization

In the preceding article a problem was worked out to determine the size of lamp required for a given light intensity. It was stated, however, that

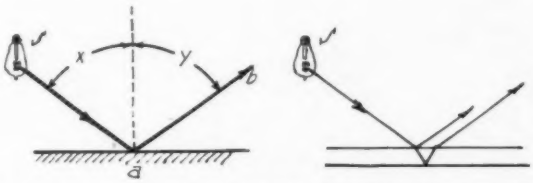


FIG. 2. AT LEFT: REFLECTION FROM POLISHED SURFACE. AT RIGHT: REFLECTION FROM MIRRORED SURFACE

this method of calculation must be modified due to certain physical factors which tend to reduce the efficiency of the illuminating system.

First it might be mentioned that irrespective of the type of illuminating system selected, most rays of light ultimately reach the plane of action on which illumination is desired through reflection. It will be noted that in the indirect system in which the fixtures contain reflectors directing all rays to the ceiling, it is the ceiling acting as a reflector which sends the light downward upon the working plane. The advantage of this system is due largely to the excellent diffusion of light thus produced, which eliminates glare and masks the source of light so that no eye strain is produced.

It is impossible to obtain 100 per cent reflection of light by the use of any material, even from a mirrored surface. It is therefore, of course, impossible to eliminate losses. The absorption of light and consequent reduction in quantity varies greatly, depending on the nature of the reflecting surface, both as to color and texture.

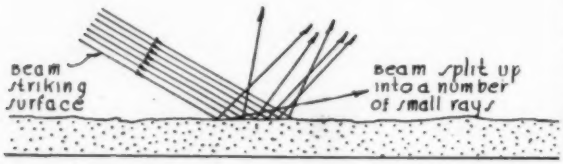


FIG. 3. DIFFUSION. RAYS OF LIGHT SENT IN ALL DIRECTIONS. THIS IS A FORM OF REFLECTION

Table I gives the percentage of light reflected by various surfaces, the highest 90 per cent, being obtained by the use of polished silver plate, and the lowest 54 per cent by new aluminum bronze. The percentage of light reflected from ceilings is taken as varying from 70 per cent for a light ceiling to 30 per cent for a dark ceiling, and for walls from 50 per cent for light walls to 20 per cent for dark walls. It will be seen that in indirect lighting successive reductions occur, which lessen the actual amount of light ultimately received at the desired location. For instance, assume that a reflector which directs light from an indirect fixture to the ceiling is provided with a corrugated mirrored surface. According to Table I only 80 per cent of the light produced at the source would be reflected. The ceiling would absorb 30 per cent of this quantity, reflecting 70 per cent of what it received or 56 per cent of the initial quantity given out. If the room is wide in proportion to the ceiling height,

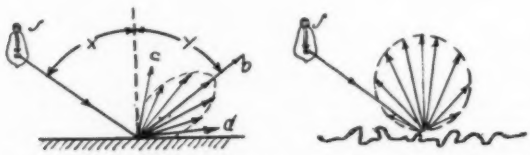


FIG. 4. AT LEFT: REFLECTION FROM SEMI-MAT SURFACE. AT RIGHT: REFLECTION FROM ROUGH MAT SURFACE

this will be the quantity of light given to the working plane, but if the room is narrow with relation to the ceiling height, a large quantity of the rays of light reflected from the ceiling will strike the walls and must be redirected by them to the working plane. The walls will only reflect 50 per cent of the amount of light striking them or 28 per cent of the total light produced by the source.

TABLE I

PER CENT REFLECTED, OPAQUE MATERIAL: LIGHT INCIDENT AT 20 DEGREES

Material	Per Cent Reflection
New Aluminum Bronze (Unprotected)	54
Corrugated Mirror	80
Polished Brass	60
Polished Nickel Plate	64
Polished Aluminum	67
Baked White Enamel (Paint)	72
High Gloss Porcelain Enamel	78
Mat Surface Porcelain Enamel, Sample No. 1	79
Polished Silver Plate	90
Mat Surface Porcelain Enamel, Sample No. 2	76
Regular Surface Porcelain Enamel, Sample No. 1	73
Regular Surface Porcelain Enamel, Sample No. 2	75
*Silvered Mirror	83
*Uranium Glass Silvered Mirror	79

* Mirrors supplied by C. A. Matisse.

This illustrates the necessity of introducing modifications over the conditions which would obtain were perfect reflection possible. Now the percentage of reflection given in Table I only applies to material in the best condition. It will of course be realized that lighting fixtures are not kept in perfect condition, becoming dusty, tarnished, etc.,

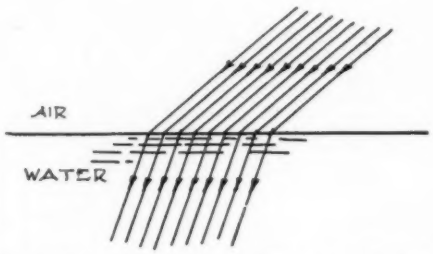


FIG. 5. REFRACTION. RAYS PASSING FROM ONE MEDIA TO ANOTHER OF DIFFERENT DENSITY ARE BENT

and therefore the amount of light projected by them decreases with use. This is also true of the source of light. Incandescent lamps become dusty and in addition depreciate from use so that the rating of a lamp in lumens would only hold for a new and clean lamp and further reduction must be made on this account.

In order to simplify calculations, instead of making a number of individual deductions for each of the causes which reduce the quantity of light it is customary to use what is termed a "co-efficient of utilization." This factor, for various conditions, is given in Table II. Let us now reconsider the calculations made in solving the problem given in the previous article. It was found that a total of 500 lumens were necessary to obtain the desired

intensity. If an indirect lighting system were selected and both ceiling and walls of the room were of a light color the co-efficient of utilization will be 22 (Table II) when the ratio of room width to

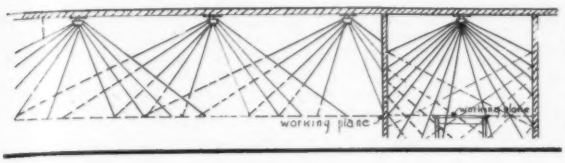


FIG. 6. WHERE RATIO OF ROOM WIDTH TO CEILING HEIGHT IS LARGE ALL RAYS REACH WORKING PLANE DIRECT, BUT WHERE THE RATIO IS SMALL THE RAYS MUST BE REFLECTED BY THE WALLS WITH CONSEQUENT LOSS

ceiling height is 1, which would be the case for this example. Therefore, of the total output of the source of light, only 22 per cent would actually reach the working plane. We must now multiply the 500 lumens by 4.55 (the reciprocal of 22), which gives 2275 lumens as that to be emitted by the source in order to obtain the desired intensity of illumination at the working plane.

A Mazda C, 150 watt lamp is rated as giving 2050 lumens, and a 200 watt lamp, 2920. The former would probably prove sufficient. This data is taken from Table III, which gives technical data on Mazda lamps. It will be noted that although nearly five times as great a quantity of light must be produced than would be the case if ideal conditions existed, yet, due to the greater efficiency of the higher powered lamp, the amount of current required is only two and one-half times as much.

A study of Table III will illustrate this point. Under "Lumens per Watt," fourth column, it will be seen that this value varies from 7.52 for the 10 Watt Mazda B lamp to 17.95 for the 1000 Watt Mazda C lamp. The latter is 2.4 times as efficient as the former.

In the next article the different types of illumination will be described in detail as well as the occupancies for which they are best suited.

TABLE II

COEFFICIENTS OF UTILIZATION

This table applies to installations in *square rooms* having sufficient lighting units symmetrically arranged to produce reasonably uniform illumination. To obtain the coefficient for any rectangular room, find the value for a square room of the narrow dimension and add one-third of the difference between this value and the coefficient for a square room of the long dimension.

Reflection Factor	Ceiling		Light 70%			Medium 50%		Dark 30%
	Walls		Light 50%	Medium 35%	Dark 20%	Medium 35%	Dark 20%	Dark 20%
Reflector Type	Light Output	Ratio — Room Width / Ceiling Height						
Prismatic Glass	90° to 120°—37%	1	.42	.38	.35	.36	.34	.33
		1½	.50	.46	.43	.44	.42	.41
		2	.56	.52	.49	.50	.47	.45
		3	.63	.59	.55	.56	.53	.51
Bowl-Frosted Lamp	0° to 90°—63%	5	.70	.66	.63	.63	.60	.57
Light Opal	90° to 120°—35%	1	.31	.27	.24	.24	.21	.18
		1½	.37	.33	.30	.30	.27	.24
		2	.43	.39	.35	.34	.31	.27
		3	.49	.45	.41	.39	.36	.31
Bowl-Frosted Lamp	0° to 90°—50%	5	.56	.52	.48	.45	.42	.36
Dense Opal	90° to 120°—20%	1	.41	.37	.34	.35	.33	.32
		1½	.49	.45	.42	.43	.41	.39
		2	.54	.50	.47	.48	.46	.44
		3	.60	.56	.53	.53	.51	.49
Bowl-Frosted Lamp	0° to 90°—60%	5	.67	.63	.59	.59	.57	.54
Dust Bowl	90° to 120°— 0%	1	.38	.36	.34	.35	.33	.33
		1½	.45	.43	.41	.42	.40	.40
		2	.49	.47	.45	.46	.44	.44
		3	.54	.52	.50	.51	.49	.49
Porcelain Enameled	0° to 90°—45%	5	.59	.57	.55	.56	.54	.54
Steel Enam.	90° to 120°— 0%	1	.43	.40	.38	.39	.37	.37
		1½	.52	.49	.47	.48	.46	.46
		2	.57	.54	.52	.53	.51	.51
		3	.63	.60	.58	.59	.57	.57
Porcelain Enameled	0° to 90°—80%	5	.69	.66	.64	.65	.63	.63
Indirect	90° to 120°—80%	1	.22	.19	.17	.14	.12	.07
		1½	.27	.24	.22	.17	.15	.09
		2	.31	.28	.26	.20	.18	.11
		3	.36	.33	.31	.24	.22	.13
Mirrored Glass	0° to 90°— 0%	5	.42	.39	.37	.28	.26	.16
Semi-Indirect	90° to 120°—60%	1	.27	.24	.21	.20	.17	.14
		1½	.34	.30	.27	.25	.22	.18
		2	.39	.35	.32	.29	.26	.21
		3	.45	.41	.38	.34	.31	.25
Light Opal	0° to 90°—25%	5	.51	.47	.44	.40	.37	.29
Semi-Indirect	90° to 120°—70%	1	.24	.21	.19	.16	.14	.10
		1½	.30	.27	.24	.20	.18	.13
		2	.34	.31	.28	.23	.21	.15
		3	.39	.36	.33	.27	.25	.18
Dense Opal	0° to 90°—10%	5	.45	.42	.39	.32	.30	.21
Enclosing	90° to 120°—25%	1	.23	.20	.17	.18	.16	.14
		1½	.30	.26	.23	.24	.21	.19
		2	.35	.31	.28	.28	.25	.22
		3	.41	.37	.34	.33	.30	.26
Light Opal	0° to 90°—40%	5	.48	.44	.41	.39	.36	.31
Semi-Enclosing	90° to 120°—30%	1	.32	.28	.26	.27	.25	.23
		1½	.40	.36	.33	.34	.32	.30
		2	.45	.41	.38	.39	.37	.35
		3	.52	.47	.44	.45	.42	.40
Opal Bowl	0° to 90°—40%	5	.59	.54	.51	.51	.48	.46

TABLE III

TECHNICAL DATA ON 110-125 VOLT MAZDA LAMPS

Watts	Total Lumens	Watts Per Spherical Candle	Lumens Per Watt	Bulb: Type	Bulb: Diam. in Inches	Maximum Over-All Length, Inches	Light Center Length, Inches
STRAIGHT-SIDE MAZDA B LAMPS							
10	75	1.67	7.52	S-17	2⅛	4⅝	2⅞
15	128	1.47	8.55	S-17	2⅛	4⅝	2⅞
25	230	1.37	9.17	S-19	2⅜	5¼	3¼
40	378	1.33	9.45	S-19	2⅜	5¼	3¼
50	476	1.32	9.52	S-19	2⅜	5¼	3¼
60	585	1.29	9.74	S-21	2⅝	5½	3⅝
100	1010	1.24	10.13	S-30	3¾	7⅞	5⅛
PEAR-SHAPE MAZDA C LAMPS							
75	865	1.09	11.53	PS-22	2¾	6½	4⅝
100	1260	1.00	12.57	PS-25	3⅛	7⅛	5⅜
150	2050	0.92	13.66	PS-25	3⅛	7⅛	5⅜
200	2920	0.86	14.61	PS-30	3¾	8⅝	6
300	4850	0.78	16.11	PS-35	4⅜	9¾	7
400	6150	0.82	15.32	PS-40	5	10	7
500	8050	0.78	16.11	PS-40	5	10	7
750	12800	0.74	16.98	PS-52	6½	13⅜	9½
1000	18000	0.70	17.95	PS-52	6½	13⅜	9½
PEAR-SHAPE MAZDA C-2 LAMPS							
75	600	1.58	8.0	PS-22	2¾	6½	4⅝
10	870	1.44	8.7	PS-25	3⅛	7⅛	5⅜
150	1400	1.31	9.4	PS-25	3⅛	7⅛	5⅜
200	2000	1.2	10.1	PS-30	3¾	8⅝	6
00	3350	1.12	11.2	PS-3	4⅜	9¾	7
500	5600	1.12	11.2	PS-40	5	10	7
ROUND-BULB MAZDA B LAMPS							
15	123	1.53	8.21	G-18½	2⅜	3¾	2¼
15	132	1.43	8.79	G-25	3⅛	4¾	2¾
25	222	1.5	8.67	G-1 ½	2	3¾	2¼
25	24	1.35	9.31	G-25	3⅛	4¾	2¾
40	386	1.33	9.45	G-25	3⅛	4¾	2¾
60	630	1.23	10.22	G-30	3¾	5½	3⅛
100	1100	1.18	10.65	G 35	4⅜	7¼	4½

Public Works vs. Public Waste

The Object of the National Public Works Department Association

By M. O. LEIGHTON

SHIPS always leak. The finest vessel afloat must occasionally operate its bilge pumps. Water is always coming into the ship while it is afloat, and causes no alarm; but let that leak increase in volume beyond a certain rate and those aware of it are greatly concerned.

In like manner all ships of State leak. Money for which there is no adequate return weeps through the seams, even if it does not run out through open ports. No one takes a thought so long as this leakage is slow and well distributed. But, as in the case of the ship at sea, there comes a time when the leakage becomes so great that the taxpayer begins to investigate and protest.

Our Government has always been wasteful in the conduct of its business. This has not been the result of any wrongful intent. Throughout a long period of years it has been accepted by the majority without much thought. This was particularly true with respect to Government expenditures when we lived under an indirect system of taxation. But now our system of taxation is direct. Every individual of more than nominal earning capacity is presented by the Internal Revenue Office with a bill for his share. And when our annual peace-time budget runs up to $5,000,000,000 as presented by the Secretary of the Treasury a few days since, we begin to think about that leakage. We begin to look for open ports.

That five billion dollar estimate will be pruned—severely pruned. That means that we must go without some things that wise and prudent men think we need. Are we then so poor as all that? The answer is that we are paying too much for what we get.

The appropriations committees in Congress will spend the greater part of their time for the next three or four months in pruning those estimates—a laudable and necessary thing to do under the circumstances; but those hard-working men are saving at the spigot and wasting at the bung-hole.

We are asking them to do the obvious thing. Give the Government a business-like organization. Co-ordinate the functions so that the processes of Government business shall dovetail. Cut out the wastes and duplications. Abolish the rivalry between departments. We advocate a Department of Public Works for the purpose of closing some of those open ports.

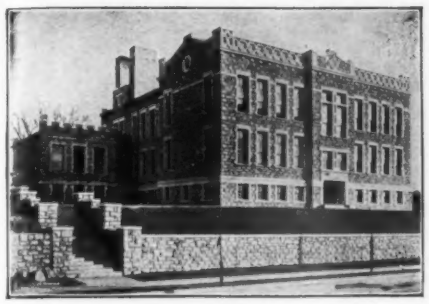
When we started this movement at Chicago last April none of us had an adequate idea of its scope. We saw loose and inefficient management of our national public works. As technical men, we knew how wasteful that was. Of the necessity for a co-ordinated structure, by which the technical and semi-technical bureaus of the Government could be rendered efficient and business-like we were profoundly impressed.

But that our effort, our legislative bill would become the cornerstone of a structure to establish efficiency in all departments of the Government we could hardly foresee.

As an organization our effort is still focused on a Department of Public Works and that alone. But we realize that with that example set, reform in other fields of Government business activity will occur by the mere logic of events.

This is the reason why our project for a Federal Department of Public Works appeals so forcibly to the business man, the manufacturer, the contractor, the merchant. The technical men who met at Chicago last April to set up this organization built better than they knew. While the project retains all the virtues that appealed to us when it was launched—of technical excellence, of rational Government organization, of economy and efficiency, we now see that it reaches to National and to business prosperity.

Individual initiative in America will not continue to be that spontaneous thing it has been in the past if part of its earnings must be diverted to the support of a chaotic Government business organization. The burdens of every business organization in the country are magnified by Government business inefficiency. In mild and respectful suggestion let us remind the political party leaders of the country that the voter who goes to the polls in the future will be thinking more about the size of that annual bill from the Internal Revenue Office and of what the country is getting for it than he will of almost any other National issue.



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Late Quotations in Building Material Markets

(Price quotations now current on building materials and supplies as quoted by dealers and jobbers for delivery in New York, Chicago, San Francisco, Seattle, and Birmingham follow. The quotations set forth are placed before readers of THE AMERICAN ARCHITECT to afford an accurate review of market conditions, rather than for use as a basis for actual purchase. They will not only provide knowledge of the exact state of the market as to items quoted, but will also present a basis to judge conditions as affecting correlating materials.)

	New York	Chicago	San Francisco	Seattle	Birmingham
BRICK					
Common	$30.45	$14.00	$18.00	$20.00	$28.00
Face brick	55.00 to 60.00	30.00 to 40.00	60.00	65.00	45.00
BURNED CLAY (Delivered on Job)					
Block partition:					
3 in., per sq. ft.	0.13	0.10	.....	0.10½	.....
4 in., per sq. ft.	0.15	0.11	.....	0.10	.....
Wall coping (single slant):					
8 in., per lin. ft.	0.16	0.22	.....	.....	0.22
12 in., per ft.	0.26½	0.33	.....	.....	0.32
18 in., per ft.	0.54	0.66	.....	.....	0.52
(Corners and angles four times the price of one foot of coping the same size)					
CEMENT					
Per bbl. in 15-cent bags (rebate 60 cents per bbl. for bags)	3.40	3.25	4.00	....	4.50
FINISHED IRON AND STEEL (Mill Shipments)					
Bar iron, refined grade	.....	.....	.....	6.00	.....
Bar iron, double refined	.....	.....	.....	.....	.....
Soft steel bars	2.62 to 4.52	.....	.....	6.00	4.00
Shapes	2.72 to 4.27	.....	.....	6.00	.....
GLASS (Discounts from Manufacturer's Price Lists)					
Single strength, A quality, first three brackets	75%	77%	.....	.....	.....
Single strength, B quality	75%	77%	.....	83%	.....
Double strength, A quality	77%	79%	.....	83%	.....
Double strength, B quality	79%	79%	.....	.....	.....
GYPSUM					
Plaster board:					
27x28x1	.....	.....	.....	.....	.....
27x48x ½	0.45	.....	.....	.....	.....
32x36x ¼	0.28	0.24	.....	.....	0.40
32x36x ⅜	0.29	0.26	.....	0.36	.....
32x36x ½	0.35	.....	.....	.....	.....
Plaster blocks:					
2 in. solid, 12x30, per sq. ft.	0.13	0.12	.....	.....	.....
3 in. hollow, 12x30, per sq. ft.	0.13	0.12	.....	.....	.....
4 in. hollow, 12x30, per sq. ft.	0.14	0.13½	.....	.....	.....
6 in. hollow, 12x30, per sq. ft.	0.21¾	0.20	.....	.....	.....
HOLLOW TILE					
2x 8x12 partitions, per 1,000 sq. ft.	98.80-111.10	.....	80.00	.....	.....
3x12x12 partitions, per 1,000 sq. ft.	148.20-165.10	110.00	108.00	105.00	112.00
4x12x12 partitions, per 1,000 sq. ft.	166.70-185.70	118.00	125.00	120.00	126.00
6x12x12 partitions, per 1,000 sq. ft.	222.30-247.60	162.20	154.50	170.00	168.00
8x12x12 partitions, per 1,000 sq. ft.	.....	221.10	222.50	230.00	224.00
10x12x12 partitions, per 1,000 sq. ft.	.....	272.70	276.00	.....	.....
12x12x12 partitions, per 1,000 sq. ft.	.....	316.90	.....	.....	.....
2x12x12 split furring, per 1,000 sq. ft.	92.60-103.20	73.80	108.00	.....	.....
LATH					
Eastern spruce, per thousand	18.00 to 20.00	17.00 to 18.00	18.00	....	.....
No. 1 white pine, per thousand	15.00 to 18.00	.....	21.00	.....	.....
No. 1 hemlock, per thousand	15.00 to 18.00	17.00 to 18.00	18.00	15.00	.....
No. 1 yellow pine, per thousand	15.00 to 18.00	16.00 to 18.00	18.00	.....	20.00
LIME					
Common, 200 lb. bbls., per bbl.	3.80	1.75	2.75	2.85	2.50
Finishing, 300 lb. bbls., per bbl.	19.50	.....	.....	3.00	2.50
Hydrated, in paper bags, per ton	.....	20.00	.....	25.00	2.50
LUMBER (Retail Prices per Thousand Delivered)					
Yellow pine, No. 1 boards, 1x6	80.00	95.00	.....	.....	125.00
Yellow pine, B, and better flooring (plain)	130.00	135.00	.....	.....	135.00
Douglas fir, 6x6 to 12x12	80.00	77.00	50 to 60	34.00 to 36.50	.....
Oak, quartered, 1 in., F. A. S.	325.00	370.00	500 00	.....	.....
Oak, plain, 1 in., F. A. S.	225.00	260.00	320.00	.....	200.70
Oak flooring, ¼ quartered, white	220.00	370.00	470.00	.....	.....
Maple, 1 in., F. A. S.	180.00	185.00	270.00	.....	.....
Maple flooring, ⅛ clear	175.00	370.00	225.00	.....	.....
Mahogany, 1 in., F. A. S.	.....	225.00	500.00	.....	.....
Spruce, 10 in.	85.00	80 to 140	104.00	.....	.....
Cypress, 1 in., F. A. S.	150.00	150.00	.....	.....	.....
METAL LATH					
Under 100 sq. yd., per sq. yd.	0.40	.35	.....	0.42	0.42

--or equal

SIX years ago, we told architects that they had "better break the pen" before writing **"or equal"** in their roofing specifications.

It was important then but is even more important now, because Barrett Specification Roofs carry a Surety Bond Guarantee.

No **"or equal"** roof dares to give such a bond.

is NEVER equal

IN writing your roofing specifications it is important *not* to add the loophole phrase *"or equal."*

An "or equal" Specification puts the honest contractor at a disadvantage and leaves the way open for any less scrupulous bidder to "skin the job" by using inferior materials and construction.

If you will write into your roofing specification simply this—"The roof shall be laid according to The Barrett Specification dated May 1, 1916, and the roofing contractor shall secure for me the (20-or 10-Year) Surety Bond therein mentioned," you will be assured of several important things—

First—You will have the benefit of competitive bidding, on an equal basis, among roofing contractors.

Second—You will receive the Barrett Inspection Service *without charge.*

Third—You will have a roof that is guaranteed by a Surety Bond to be free from maintenance expense for the guaranteed period.

Fourth—You will have a roof for which there is positively no "or equal."

The Surety Bond Guarantee

THE Barrett Company is the *only* Company that has enough confidence in its roof to put back of it a Surety Bond. In fact, no other concern will guarantee a roof for so long a period, much less furnish a Surety Bond.

The Surety Bond is offered on all Barrett Specification Roofs of fifty squares or more in all cities of 25,000 or over, *and in smaller places where our Inspection Service is available.* It is issued by the U. S. Fidelity & Guaranty Company of Baltimore, and exempts the owner from all maintenance expense for the life of the Bond.

Our only stipulations are that the Barrett Specification dated May 1, 1916, shall be strictly followed and that the roofing contractor shall be approved by us and his work subject to our inspection.

These roofs take the base rate of insurance and cost less per year of service than any other type of "permanent" roof.

When you have written the details of the Barrett Specification Roof in your contract, *stop there.* You will always be glad you didn't insert *"or equal."*

Important Notice

The Barrett Specification 20-Year Bonded Roof represents the most permanent roof-covering it is possible to construct, and while we bond it for twenty years only, we can name many buildings carrying this type of roofing that have been in service over forty years and are still in good condition.

For those who desire a lighter and less expensive roof-covering, we recommend the *Barrett Specification 10-Year Bonded Roof.*

Both roofs are built of the same high-class waterproofing materials, the only difference being the amount used.

Full details regarding these Bonded Roofs and copies of The Barrett Specification sent free on request.

The Barrett Company

NEW YORK	CHICAGO	PHILADELPHIA
BOSTON	ST. LOUIS	CLEVELAND
CINCINNATI	PITTSBURGH	DETROIT
NEW ORLEANS	BIRMINGHAM	KANSAS CITY
MINNEAPOLIS	DALLAS	NASHVILLE
SYRACUSE	SEATTLE	PEORIA
ATLANTA	DULUTH	SALT LAKE CITY
BANGOR	WASHINGTON	JOHNSTOWN
LEBANON	YOUNGSTOWN	MILWAUKEE
TOLEDO	COLUMBUS	RICHMOND
LATROBE	BETHLEHEM	ELIZABETH
BUFFALO	BALTIMORE	

The BARRETT COMPANY, Limited

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. SYDNEY, N. S.
HALIFAX, N. S.

Barrett Specification Roofs

Bonded for 20 and 10 Years

Late Quotations in Building Material Markets—*Continued*

	New York	Chicago	San Francisco	Seattle	Birmingham
PIPE					
Cast iron:					
6 in. and heavier	$67.30	$72.80	.....	92.50	$65.00 to 66.00
4 in.	73.30	75.80	.....	.....	68.00 to 69.00
3 in.	.....	82.80	.....	.....	.....
(And $2 additional for Class A and gas pipe)					
(Discounts to jobbers for carload lots on the Pittsburgh basing card; freight rates from Pittsburgh to New York, and also from Pittsburgh to Chicago, in carloads, per 100 lbs., are 27c. An additional 5 per cent discount is allowed to large jobbing interests over those listed below.)					
	F.O.B. Pittsburgh	F.O.B. Chicago			
	Butt Weld				
Wrought:					
Steel:					
Black, ⅛ to 3 in.	47 to 54 %	38 to 45.1%	.....	34 to 41	.....
Galv., ⅛ to 3 in.	20½ to 41½%	10.1 to 30.1%	.....	31½ to 28	.....
Iron:					
Black, ⅛ to 1½ in.	34½%	11.9 to 22.6%	.....	16½ to 21½	.....
Galv., ⅛ to 1½ in.	+25 to 18½%	+39.9 to 4.6%	.....	3½	.....
	Lap Weld				
Steel:					
Black, 2½ to 6 in.	50 %	41.1%	.....	.....	.....
Galv., 2½ to 6 in.	37½%	27.1%	.....	.....	.....
Iron:					
Black, 2½ to 6 in.	30½%	18 %	.....	.....	.....
Galv., 2½ to 6 in.	17½%	3.6%	.....	.....	.....
PLASTER					
Neat wall cement in 15-cent bags, per ton	23.50	20.00	$18.50 to 20.00	24.50	24.00
Finishing plaster	25.00	20.50	19.50 to 21.00	26.00	24.00
Lath mortar, in cloth bags, per ton	16.50	.....	.....	.....	.....
RADIATION					
Discount from list on standard heights	45%	41 to 42%	.....	41%	44.45%
REINFORCING BARS					
High carbon steel from mill	48.50	.....	55.00	45.00	.....
Medium steel from mill	48.50	.....	55.00	45.00	4.75
ROOFING MATERIAL					
Tarred felt paper:					
No. 1—25 lbs. to 100 sq. ft., per ton	92.00	90.00	.....	120.00	95.00
No. 2—16 lbs. to 100 sq. ft., per ton	81.25	90.00	.....	110.00	95.00
No. 3—12 lbs. to 100 sq. ft., per ton	81.63	90.00	.....	100.00	.....
Rosin sized sheathing, per ton	75.00	.....	.....	110.00	.....
Corrugated roofing, galvanized, 2½ in. corrugation, over flat sheets, per 100 lbs.	0.30	.....	.....	.....	.....
SHINGLES					
Red cedar, 5 to 2, clear, per thousand	15.00	10.00	16.00	6.00	12.00
White cedar, extra star, A star, per thousand	16.00	9.50	17.00	5.75	.....
SLATE ROOFING					
	F.O.B. Cars Quarry Station				
Pennsylvania:					
Best Bangor	$7.75 to $9.00	.....	.....	.....	.....	9.00 to 18.00
No. 1 Bangor Ribbon	6.75 to 7.00	.....	.....	.....	.....	.....
Pen Argyl	6.50 to 7.25	.....	.....	.....	.....	.....
Peach Bottom	10.50 to 12.50	.....	.....	.....	.....	.....
No. 1 Chapman	6.25 to 7.25	.....	.....	.....	.....	.....
Vermont:					
No. 1 Sea Green	4.25 to 6.75	.....	.....	.....	.....	27.00
Unfading Green	9.00 to 10.50	.....	.....	.....	.....	27.00
Red	12.00 to 20.00	.....	.....	.....	.....	30.00
Maine:					
Brownsville, U'f'g Black, No. 1	12.00	.....	.....	.....	.....	.....
Slaters' felt, 30 lb. roll	0.92	.....	.....	.....	.....	3.00
Slaters' felt, 40 lb. roll	1.22	.....	.....	.....	.....	3.25
STRUCTURAL STEEL					
Beams and channel, 3 to 15 in., per lb.	3.47	3.47	4.75 to 5.00	4.70 to 5.00	.06 to .0675
Beams and channel, over 15 in., per lb.	3.57	3.57	4.75 to 5.00	.....	.06 to .0685
Angles, 3 to 6 in.	3.47	3.47	4.75 to 5.00	4.10	4.70
Zees and tees	3.57	3.47 to 3.52	.....	.....	.....
Steel bars, half extras, from mill	.....	.....	4.90	4.00	.....
STUCCO					
In cloth, per ton (white, mixed)	22.50	20.50	.....	.....	.....
STUCCO BOARD					
Medium weight stucco board, plain, per thousand sq. ft.	42.50	65.00	.....	.....	60.00
Medium weight stucco board, creosoted, per thousand sq. ft.	50.00	70.00	.....	.....	.....
Heavy weight stucco board, plain, per thousand sq. ft.	55.00	75.00	.....	.....	.....
Heavy weight stucco board, creosoted, per thousand sq. ft.	60.00	80.00	.....	.....	.....
Medium weight stucco board, plain, narrow key, per thousand sq. ft.	50.00	75.00	.....	.....	.....
Medium weight stucco board, narrow key, creosoted, per thousand sq. ft.	55 00	70.00	.....	.....	.....
Insulating board, heavy felt background, per thousand sq. ft.	50.00	70.00	.....	.....	.....
SHEATHING BOARD					
Heavy weight, sheathing board, per thousand sq. ft.	50.00	70.00	.....	.....	65.00
Medium weight sheathing board, per thousand sq. ft.	46.00	63.00	.....	.....	.....
Stucco or plaster board, sheathing board and insulating board are in rolls containing one sheet 25 ft. long and 4 ft. wide (100 sq. ft.).					
WALL BOARD					
Wall board, shipped any length, 4 ft. wide, per thousand	45.00	50.00	.....	60.00	53.00
Packed flat in cars if ordered in less than car lots. Add $5.00 per thousand ft. for crating.					